

Controlling Alcohol Problems among Hospitalized Trauma Patients

Ronald V. Maier, MD, FACS

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Alcohol intoxication is the leading risk factor for injury. It is a well-established fact that alcohol consumption contributes to unintentional and intentional injury and to mortality overall.

This relationship, documented since ancient Egypt, has only become more defined and ingrained in modern society. It has been demonstrated that most of the U.S. population frequently consumes alcohol. In fact, a 1996 national survey revealed that approximately one half the populace had used alcohol within the previous 30 days and that two thirds of those over 12 years of age reported annual use of alcohol.¹

Alcohol's effect on individual reaction times and judgment leads to the major cause of alcohol-induced injury—motor vehicle crashes. In older adults, alcohol is frequently a factor in unintentional injury such as pedestrian and fall-related injuries. Furthermore, intentional injury brought on by the dissociative, antisocial, and disruptive behaviors induced by alcohol and drug abuse have been associated with intentional injury from homicide and suicide.² In approximately one third of intentional interpersonal injuries involving strangers, alcohol is a key factor; the percentage rises to two thirds in episodes where individuals suffer injury at the hands of an intimate partner. Of individuals currently incarcerated, nearly 40% used alcohol at the time the crime was committed.³

Alcohol and illicit drug consumption is now the third leading preventable cause of death in the United States, accounting

for approximately 100,000 deaths annually.^{3,4} In addition to alcohol's direct lethal effects, it often contributes to comorbidities that can lead to significant morbidity or early mortality. The statistics are even more alarming for our youth—alcohol and drug use are associated with their leading causes of death (i.e., unintentional and intentional injury resulting from motor vehicle crashes, suicide, and homicide).⁵⁻⁷

Of more than 20 million adults requiring emergency department care for injuries in the year 2000,⁸ it is estimated that 27% would screen positive for alcohol use disorders or intoxication.⁹ Of more than 150,000 trauma-related deaths per year, nearly one half the unintentional trauma—two thirds of overall mortality—is attributable to motor vehicle crashes. Thus, consider these dismal statistics. For more than 20 years, alcohol has been consistently linked in 40% to 50% of deaths resulting from motor vehicle crashes; 20% to 70% of deaths caused by occupational and domestic incidents, fires, and drowning; and approximately 50% to 60% of deaths attributable to intentional injuries. In addition to these depressing statistics, commonly abused drugs such as marijuana and cocaine have been implicated in 18% of motor vehicle crash-related fatalities.

To combat America's injury epidemic, trauma care systems have steadily improved over the past 30 years; such improvements include the development of highly successful Level I and Level II trauma centers throughout the United States. However, these improvements in care have not reduced the incidence of trauma-related deaths that occur at the scene (approximately 50%). These numbers will change only when prevention efforts are increased.

Despite significant overall improvement in trauma care—including documented increases in survival rates and decreases in long-term morbidity—trauma professionals have devoted little effort to preventing a major cause of severe injury and repeat injury: the misuse of alcohol and drugs. Harborview Medical Center, a Level I regional trauma center for the northwestern United States (an area encompassing four states and one fourth of America's landmass), has had a long standing interest in breaking this lethal chain of events. In association with Harborview's Injury Prevention Center and federal research funding, it has investigated various components of the alcohol-induced injury epidemic and has tested the validity of pro-

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From the University of Washington Harborview Medical Center, Seattle, Washington.

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Address for reprints: Ronald V. Maier, MD, FACS, Box 359796 Harborview Medical Center, 325 9th Avenue Seattle, WA 98104-2499; email: ronmaier@u.washington.edu.

posals for intervention and prevention. On the basis of these intervention trials and those conducted elsewhere, brief alcohol (and, to a lesser extent, drug abuse) counseling sessions have reduced recidivism by 50% and have significantly reduced the number of binge drinking episodes and drinks consumed per week.^{12,13}

These interventions have also reduced health care costs. Gentilello and colleagues recently documented that for each dollar spent on alcohol screening and intervention, \$3.81 is saved in overall health care costs.⁹ Every high-level trauma center has an ethical obligation to develop an injury outreach program that emphasizes the prevention of alcohol- and drug-related recidivism.

Whatever the underlying causes of injury, both the trauma community and the public should be involved in injury prevention. For example, the health care worker can use “teachable moments” during the hospital visit to help the patient link drinking or drug use to negative consequences and, perhaps, the reason for the current hospitalization. Those involved in trauma care who are exposed daily to the devastation of injury must use their clinical experiences and their research data to educate the public, their strongest ally, and legislative leaders to deal with this epidemic. The public’s response may include calling for legislative approaches to restrict access to alcohol and drugs, particularly among underage persons, and to curb alcohol- and drug-impaired driving. It will take a united effort by government and nongovernment agencies and the public to successfully fight the injury epidemic.¹⁴ These proceedings describe the successes we have had thus far and consider the challenges and hurdles that lie ahead. We can use this information to impress on ourselves and our institutions the priority of this battle against wasted life. We can also use this information as a reminder that effective strategies already exist. These proceedings are a “must read” for those on the front lines who daily confront injury caused by alcohol and drug abuse.

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The Challenge of Change

Carlo C. DiClemente, PhD, ABPP

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What motivates people to modify or change hazardous drinking behavior? First, problem drinkers will not reduce drinking habits or quit drinking until they become concerned about the problem, are convinced of the need for change, are committed to making the effort, and are prepared with a plan to change. Then, of course, this plan must be implemented and revised as needed. An individual's ability to move toward change is greatly influenced by family, friends, peers, and role models. Furthermore, it is clear that the advice and influence of doctors and other medical professionals plays a special role in this behavior change process. Research demonstrates that assessment, advice, and brief interventions given in medical settings can dramatically change patient behavior.

Physical injuries and illnesses that necessitate a visit to a trauma center or emergency department (ED) bring large numbers of individuals who are abusing alcohol into a medical setting. This opens a window of opportunity for medical professionals to assess these individuals for excessive drinking and, if appropriate, to deliver brief interventions that can change the entire course of their lives. A growing number of studies indicates the viability and effectiveness of brief interventions on the drinking behavior of patients in trauma centers and EDs. Implementing brief interventions as standard practice in every trauma and ED setting can make a significant impact on reducing drinking, preventing reinjury, and promoting the health and well-being of these patients.

Changing standard practice is often even more difficult for medical professionals than changing behavior is for alcohol abusers. There are significant barriers to implementing screening and brief intervention protocols. Attitudes about alcohol and addiction, privacy and confidentiality matters, staff priorities, and legal issues complicate implementation. As with any change, medical professionals must be concerned, convinced of the need for change, and committed to implementing new protocols. The series of articles in these proceedings explain the need for intervention programs and present the benefits and challenges of incorporating such programs into standard trauma and ED care. Commitment to these innovative programs can empower trauma and ED professionals to offer effective treatment to patients with alcohol problems.

One significant barrier to implementing universal screening and intervention involves a myth about addiction and ability to change behavior. Many health professionals are pessimistic about the alcohol and drug abuser's capacity for change.

They have watched many of their alcohol- and drug-addicted patients struggle to modify or stop problematic substance abuse only to relapse. However, this pessimism is shortsighted and misguided. Although substance abusers do relapse several times before successfully changing their drinking or drug use, relapse is not simply a problem of substance abuse. Often, the injuries and illnesses that bring patients to trauma units and EDs require extensive short- and long-term behavior changes (e.g., rehabilitation, medication compliance, dietary restrictions, and specific physical activities). Many patients do not follow through on treatment recommendations by trauma center staff. In fact, rates of noncompliance with recommendations for other medical problems often meet or exceed the relapse rates of substance abusers. Relapse and noncompliance are not unique to substance abusers but are universal problems associated with behavior change.

Even though patients often do not follow recommendations, we would not refrain from screening and giving advice to heart patients or diabetics. We should do no less when treating alcohol or drug abusers.

Outcomes from brief intervention studies demonstrate that screening and intervention can help patients make significant changes in alcohol and drug use. When the motivat-

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From ABPP University of Maryland, Baltimore County Department of Psychology, Baltimore, Maryland.

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Address for reprints: Carlo C. DiClemente, PhD, University of Maryland, Baltimore County Department of Psychology, 1000 Hilltop Circle, Baltimore, MD 21250; email: diclemen@umbc.edu

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ing aspects of injury and illness are coupled with a targeted, competent, and caring intervention, patients can and do change their substance use behavior. It is time to offer this opportunity for change to all of our patients.

I challenge my colleagues in the addiction field to join with trauma professionals and offer their help and expertise in creating and implementing early intervention programs for problem drinkers and drug users. Addiction professionals

must leave the comfort of addiction treatment facilities and services and meet trauma patients with alcohol and drug problems in these critical moments when circumstances and motivation create unique opportunities for promoting change. By working together, medical and addiction professionals can change practice to promote the prevention of injury and behavior change among trauma and ED patients who abuse alcohol and other drugs.

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When I organized a similar conference for emergency medicine in 2001,¹ Larry Gentilello requested that trauma surgery and trauma centers be included. I declined, but promised to consider a second conference for trauma surgeons. When planning for this conference began in 2002, Dr. Gentilello not only helped identify important participants, but also agreed to coedit the supplement. His steadfast commitment and ready attention have been invaluable assets in assuring the relevance and quality of this endeavor.

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Daniel W. Hungerford, DrPH

*National Center for Injury Prevention and Control
Centers for Disease Control and Prevention
Atlanta, GA*

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Address for Reprints: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 4770 Buford Highway NE, Mailstop F-41, Atlanta GA 30341, E-mail: DHungerford@cdc.gov

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Steering Committee

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Daniel W. Hungerford, DrPH, MS, Chairperson
National Center for Injury Prevention and Control,
Centers for Disease Control and Prevention

Cheryl Anderson
National Trauma-EMS Systems Program, Health
Resources and Services Administration

Thomas F. Babor, PhD, MPH
Department of Community Medicine and Health-
care, University of Connecticut Health Center

Victor Capoccia, PhD
Addiction Prevention and Treatment Team, Robert
Wood Johnson Foundation

Laurie Flaherty, RN, MS
Emergency Medical Services Division, National
Highway Traffic Safety Administration

Herman Diesenhuis, PhD
Division of Service Improvement, Center for Sub-
stance Abuse Treatment, Substance Abuse and
Mental Health Services Administration

Mary C. Dufour, MD, MPH
Office of the Director, National Institute on Alcohol
Abuse and Alcoholism

David V. Feliciano, MD
Department of Surgery, Division of Trauma/Surgi-
cal Critical Care, Emory University

Larry M. Gentilello, MD
Division of Burn, Trauma, and Critical Care, De-
partment of Surgery, UT Southwestern Medical
School

Eric Goplerud, PhD
Department of Health Policy, George Washington
University School of Public Health and Health Ser-
vices

John Gregrich
White House Office of National Drug Control Policy

Janice Ford Griffin
Join Together, Boston University School of Public
Health

David Hoyt, MD
Division of Trauma, Burns, and Critical Care, De-
partment of Surgery, University of California San
Diego School of Medicine

Paul McGann, MD
Office of Clinical Standards and Quality, Centers
for Medicare and Medicaid Services

Anthony A. Meyer, MD, PhD
Department of Surgery, University of North Caro-
lina at Chapel Hill

Ernest E. Moore, MD
Department of Surgery, Denver Health Medical
Center and University of Colorado Health Sciences
Center

Basil A. Pruitt, Jr, MD
Division of Trauma, Department of Surgery, The
University of Texas Medical School at San Antonio

Gordon S. Smith, MD, MPH
Center for Safety Research, Liberty Mutual Re-
search Institute for Safety

Jack Stein, PhD
Division of Epidemiology, Services and Prevention
Research, National Institute on Drug Abuse

Donald Trunkey, MD
Department of Surgery, Oregon Health & Science
University

Elinor Walker, PhD
Center for Quality Measurement and Improvement,
Agency for Healthcare Research and Quality

Stephen Wing
Office of the Administrator, Substance Abuse and
Mental Health Services Administration

Robert Woolard, MD
Section of Emergency Medicine, Brown University

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Participant Directory

J Trauma. 2005;59:S7–S9.

- John Allen, PhD, MPA
Pacific Institute for Research and Evaluation, Calverton,
MD
- Cheryl Anderson
National Trauma-EMS Systems Program, Health
Resources and Services Administration
- Timothy Apodaca
Psychology Department, Brown University
- Samantha-Hope Atkins
Hope Networks, Baton Rouge, LA
- Thomas Babor, PhD, MPH
Department of Community Medicine and Health Care,
University of Connecticut Health Center
- John Bailey, MSW, MPA
Office of Policy, Planning, and Budget, Substance Abuse
and Mental Health Services Administration
- Walter Biffl, MD
Division of Trauma and Surgical Critical Care,
Department of Surgery, Brown Medical School
- Anton Bizzell, MD
Office of Research Translation and Communications,
National Institute on Alcohol Abuse and Alcoholism
- Charles Branas, PhD
Department of Biostatistics and Epidemiology,
University of Pennsylvania School of Medicine
- Raul Caetano, MD, PhD
University of Texas School of Public Health
- Victor Capoccia, PhD
Addiction Prevention and Treatment Team, Robert
Wood Johnson Foundation
- William Cioffi, MD
Department of Surgery, Brown Medical School
- Richard Compton
Office of Research and Technology, National Highway
Traffic Safety Administration
- H. Gill Cryer, MD, PhD
Trauma and Critical Care Program, Division of Surgery,
University of California Los Angeles Medical Center
- Paul Cunningham, MD
Department of Surgery, State University of New York
Upstate Medical University
- Herman Dieneshaus, PhD
Division of Service Improvement, Center for Substance
Abuse Treatment, Substance Abuse and Mental Health
Services Administration
- Jean Donaldson
Center for Substance Abuse Treatment, Substance Abuse
and Mental Health Services Administration
- Christopher Dunn, PhD
Department of Psychiatry and Behavioral Sciences,
University of Washington
- David Feliciano, MD
Division of Trauma/Surgical Critical Care, Emory
School of Medicine
- Craig Field, PhD, MPH
Houston School of Public Health, University of Texas
- Laurie Flaherty, RN, MS
Emergency Medical Services Division, National
Highway Traffic Safety Administration
- Larry M. Gentilello, MD
Division of Burns, Trauma, Critical Care, Department of
Surgery, UT Southwestern Medical Center
- Eric Goplerud, PhD
Ensuring Solutions to Alcohol Problems, George
Washington University Medical Center
- Janice Ford Griffin
Join Together, Boston University School of Public Health
- Anara Guard
Join Together, Boston University School of Public Health
- Maggi Gunnels, PhD, MS
Office of Strategic and Program Planning, National
Highway Traffic Safety Administration
- Scott Haapala, BA
Office of the Administrator, Substance Abuse and
Mental Health Services Administration
- Jeffrey Hammond, MD, MPH
Trauma/Surgical Critical Care, Department of Surgery,
Robert Wood Johnson Medical School
- Lisa Harkness
Trauma Program, London Health Sciences Centre,
Ontario, Canada
- Stacy Harper
National Center for Injury Prevention and Control,
Centers for Disease Control and Prevention
- Christine Heenan
Clarendon Group, Providence, RI

DOI: 10.1097/01.ta.0000183691.29347.5f

- Heidi Hotz, RN
Society of Trauma Nurses and Department of Surgery,
Cedars-Sinai Medical Center
- John Hough, PhD
National Institute on Alcohol Abuse and Alcoholism,
National Institutes of Health
- David Hoyt, MD
Division of Trauma, Burns, and Critical Care,
Department of Surgery, University of California San
Diego School of Medicine
- Dan Hungerford, Dr PH, MS
National Center for Injury Prevention and Control,
Centers for Disease Control and Prevention
- Donna Johnson
Addictive Disease Services, Highland Rivers Center,
Cartersville, GA
- Dennis Kelso, PhD
Altam Associates, Inc., San Diego, CA
- Louis Ling, MD
Department Emergency Medicine, University of
Minnesota
- Jennifer Loukissas, MPP
National Institutes of Health, Department of Health and
Human Services
- Charles Lucas, MD
Department of Surgery, Wayne State University School
of Medicine
- Jason Machan, PhD
DATACORP, Providence, RI
- Ann Mahony, MPH
Division of Service Improvement, Center for Substance
Abuse Treatment, Substance Abuse and Mental Health
Services Administration
- Kimball Maull, MD
Department of Surgical Education, Carraway Medical
Center
- Paul McGann, MD
Office of Clinical Standards and Quality, Centers for
Medicare and Medicaid Services
- Eileen McGrath, JD
Executive Office, American Society of Addiction Medicine
- J. Wayne Meredith, MD
Department of General Surgery, Wake Forest University
School of Medicine
- Anthony Meyer, MD, PhD
Department of Surgery, University of North Carolina
School of Medicine
- Peter Monti, PhD
Center for Alcohol and Addiction Studies, Brown
University
- Ernest Moore, MD
Department of Surgery, Denver Health Medical Center
and University of Colorado Health Sciences Center
- Margaret M. Murray, MSW
Health Sciences Education Branch, National Institute on
Alcohol Abuse and Alcoholism
- Susan Nedza, MD, MBA
American College of Emergency Physicians
- Harold Perl, PhD
Health Services Research Branch, National Institute on
Alcohol Abuse and Alcoholism
- Karen Pierre, BSW, MSW, RSW
Trauma Program, London Health Sciences Centre,
Ontario, Canada
- Basil A. Pruitt, Jr, MD
Division of Trauma, Department of Surgery, The
University of Texas Medical School at San Antonio
- Peter Rostenberg, MD, FASAM
Trauma Committee, American Society of Addiction
Medicine
- Loring Rue, III, MD
Section of Trauma, Burns, and Surgical Critical Care,
Department of Surgery, University of Alabama School
of Medicine
- Jeffrey Runge, MD
National Highway Traffic Safety Administration,
Department of Transportation
- Kathy Salaita, PhD
Division of Clinical and Prevention Research, National
Institute on Alcohol Abuse and Alcoholism
- Thomas Scalea, MD
Program in Trauma, R. Adams Cowley Shock Trauma
Center, University of Maryland School of Medicine
- William Schechter, MD
Department of Surgery, University of California San
Francisco School of Medicine
- Carol Schermer, MD
Department of Surgery, University of New Mexico
Health Sciences Center
- Gerard Schmidt
Clinical Affairs Consultant, NAADAC, the Association
for Addiction Professionals
- Robert Schmieg, MD
Department of Surgery, University of Mississippi
Medical Center
- Michael Sise, MD
Division of Trauma, Scripps Mercy Hospital
- Gordon Smith, MD, MPH
Center for Safety Research, Liberty Mutual Research
Institute for Safety
- Carl Soderstrom, MD
Medical Advisory Board, Maryland Motor Vehicle
Administration
- Ronald Stewart, MD
Department of Surgery, University of Texas Health
Science Center at San Antonio

Tanya Charyk Stewart
Trauma Program, London Health Sciences Centre,
Ontario, Canada

Harry Teter
American Trauma Society

Donald Trunkey, MD
Division of Trauma, Department of Surgery, Oregon
Health and Science University

Elinor Walker, PhD
Center for Quality Improvement, Agency for Healthcare
Research and Quality

Stephen Wing
Office of the Administrator, Substance Abuse and
Mental Health Services Administration

Robert Woolard, MD
Department of Emergency Medicine, Brown University
Medical School

Interventions in Trauma Centers for Substance Use Disorders: New Insights on an Old Malady

Daniel W. Hungerford, DrPH

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“The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them.”
-Sir William Bragg, *British physicist (1862-1942)*

INTRODUCTION

With a great deal of support from other groups and federal agencies, Centers for Disease Control and Prevention (CDC) convened two conferences to discuss the impact of substance use disorders on patients in acute care settings—one in 2001 on alcohol problems among emergency department (ED) patients, and this conference on alcohol and drug problems among trauma center patients. Both conferences aimed to promote understanding of a new conceptual model for substance use disorders and to initiate greater collaboration between clinical physicians and substance-use treatment professionals and researchers. As an epidemiologist at CDC’s National Center for Injury Prevention and Control (Injury Center), my central mission for the past eleven years has been injury prevention and control. I am convinced that it is not possible to successfully accomplish injury control without addressing the nation’s alcohol and drug problems. These proceedings confirm that trauma centers are a prime setting in which to identify and help patients with substance use problems. It is doubtful that any other clinical medical setting has a higher prevalence of patients with alcohol and drug problems than trauma centers.

Note: Readers who want a quasi-interactive understanding of the work ahead and a sense of “being at the conference,” are encouraged to read the detailed discussion summaries for each of the five sessions. Combined, the discussions and the papers in this issue contribute to our

understanding of the complexity and importance of alcohol misuse and drug abuse in trauma care settings and the opportunity that trauma centers provide to address substance use problems.

THE PROBLEM

In *Alcohol: The Ambiguous Molecule*,² Griffith Edwards describes beverage alcohol’s pervasive role in the history of human societies, as religious sacrament, agent of disease, and recreational drug. No wonder then, that historically, a variety of conceptual models³ have been used to understand how such a simple molecule—two carbons, five hydrogens, and one oxygen atom—can have such a profound effect on individuals and society. Much of the following discussion will refer to alcohol, but some of it will also apply to illegal, over-the-counter, and prescription drugs. The illegality of some drugs can be a complicating factor; however, many concepts regarding behavior, behavior change, screening, and treatment are similar for both illegal and legal substances.

PREVAILING CONCEPTUAL MODELS

People generally have a conceptual model they use to understand illnesses and behavioral conditions, and that model includes notions of etiology and treatment. Even though people may not have consciously thought about how alcohol and drugs affect individuals and society, their conceptual model is susceptible to subtle, but pervasive and prevailing, social beliefs. Physicians and health care professionals are not immune from such social transmission of models of thinking, particularly when dealing with topics in which they have little training. Therefore, a brief description of prevailing models will be presented before introducing the new model alluded to above.

Dispositional Disease Model

Since the middle of the last century, the dispositional disease model, generally called alcoholism by the lay public, has dominated the American medical community’s understanding of alcohol-related problems.⁴ This model considers alcoholics qualitatively different from other drinkers; the crucial differences are that alcoholics lose control over drinking once they start and that the disease, although incurable, can be suppressed through abstinence. A central tenet of the

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disease model is that alcoholism is an abnormal, constitutional disposition influenced by enduring biological factors, affecting only part of the population. This model is beneficial because it encourages society to care for alcoholics with compassion. In place of stigma and punishment, the model fosters humane treatment methods and encourages the medical community to become involved in treatment. Yet, the disease model has a negative side—it supports the belief that only a subset of the total population is vulnerable to the harmful effects of beverage alcohol.^{3,4} Because only a fragment of the population exhibits this constitutional abnormality, perhaps as few as 4%,^{5,6} the public, in general, seems unconcerned about how much or how often they drink and views alcohol-related problems as not inherent in the use of alcohol.

The beverage-alcohol industry can easily subscribe to the disease model, yet still accepts the reality of addiction to alcohol and supports treatment for alcoholics. However, by focusing on the vulnerability of only a small portion of the population, society can be distracted from broader measures that can reduce the individual and societal harm associated with alcohol misuse. Put in terms of a commonly used public health paradigm—host, agent, and environment—if alcoholics (the host) are considered the problem, society will be less likely to base policies on the fact that under certain circumstances, or when engaging in certain activities, alcohol (the agent) is a potentially dangerous substance, especially for certain high-risk groups such as adolescents or patients with underlying medical conditions. Consequently, society will also be less likely to embrace broad preventive measures designed to create an environment less conducive to misuse and harm, alcohol tax increases, restrictions on availability, and anti-drunk driving measures.⁷

Alcoholics Anonymous (AA) Model

Historically, the dispositional disease model has often been confused with the other prevailing conceptual model in the United States, that being Alcoholics Anonymous (AA).⁴ Although the organization offers no formal statement on the cause(s) of an individual's drinking problems, AA, like the dispositional disease model, places the locus of the problem on the individual and prescribes abstinence as the preferred therapy. To the extent that these two models promote humane treatment and encourage individuals to take responsibility for changing their behavior, the models are useful and seem compatible to the public and medical community.

NEW RESEARCH METHODS

Before the 1950s, physicians and others explored a plethora of treatment modalities to treat or cure alcoholism. However, many of these putative treatments were bizarre by modern standards, and few could truly be categorized as research. In a chapter from *Alcohol: The Ambiguous Molecule* entitled "In the Name of Treatment,"² Edwards states, "Over the years, what has been done to people with drinking

problems in the name of treatment beggars belief." In the middle of the last century, the world of medicine was being introduced to new empirical research methods that increased the scientific rigor of studies in human populations. In 1948, the first double-blind properly randomized trial evaluated the use of streptomycin for treating tuberculosis. Several years passed before these new methods were applied to addiction treatment studies. When these methods were used, researchers were surprised by their findings and were forced to re-evaluate prevailing treatment practices.

Enter Empirical Research and Brief Interventions

By 1977, randomized trials in the United Kingdom surprised researchers by demonstrating that specialized alcohol treatment consisting of many counseling sessions did not help patients who were misusing alcohol any more than brief, onsite counseling during family clinic visits.⁹ Starting in 1978, these results were replicated in the United States. In a series of studies, Miller and colleagues showed that "whereas a small dose of counseling appears to be much better than no intervention, increasing the dose does not necessarily yield greater gains."¹⁰ These studies and those of other researchers revealed two other important findings. One, specific measurable therapist behaviors—showing empathy or being confrontational—were predictive of positive and negative patient outcomes, respectively. Two, brief empathic interventions with dependent drinkers (read "alcoholics"), drug addicts (including marijuana abusers), diabetics, and cardiovascular rehab patients showed positive results.¹⁰

In 1979, studies showed that brief advice by physicians increased the probability that patients' smoking cessation efforts would be successful.¹¹ Since then, further trials have confirmed and broadened findings that skillfully and appropriately delivered brief advice provided in different clinical settings (including emergency departments and trauma centers), can significantly increase the likelihood that patients will reduce harmful substance abuse and, in many cases, stop drinking altogether. In 1985, the World Health Organization initiated a collaborative, randomized, brief alcohol-intervention trial in community health centers in 10 countries on five continents. Results showed that 5 and 20 minute interventions significantly decreased average daily alcohol consumption and intensity of drinking, compared with controls.¹² Many studies have shown that brief alcohol interventions—some as short as 5 and 10 minutes—reduced injuries requiring emergency department (ED) or trauma visits, length of hospitalization, and alcohol consumption.^{13–22} More recently, brief intervention has been shown to reduce cocaine and heroin use.²³

Recent studies also indicate that screening and brief interventions are cost-effective and can have a prolonged beneficial effect. In a trauma-center cost-benefit analysis, every dollar spent on screening an intervention saved \$3.81 in direct injury-related costs.²⁴ In a primary-care benefit-cost analysis, the average benefit per patient was \$1,151 and the

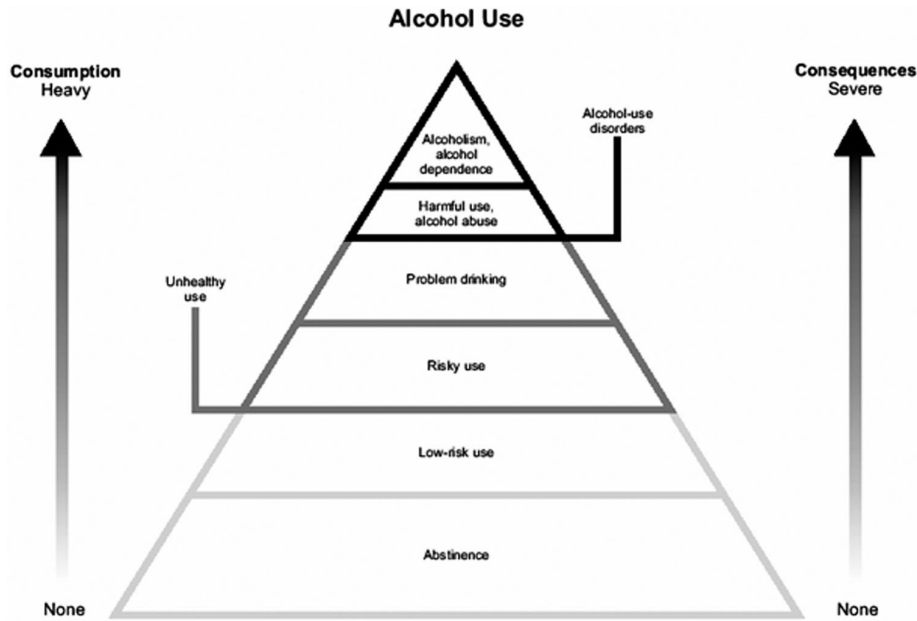


Fig. 1. *The Spectrum of Alcohol Use.* The spectrum of alcohol use extends from abstinence and low-risk use (the most common patterns of alcohol use) to risky use, problem drinking, harmful use and alcohol abuse, and the less common, but more severe alcoholism and alcohol dependence.⁴⁴ Consumption and the severity of consequences increase from low-risk use through dependence. The areas of the pyramid reflect the approximate prevalence of each category. Clinicians and public health practitioners should be most concerned with the categories in the shaded upper portions of the pyramid (representing unhealthy alcohol use).

From Saitz R. Unhealthy alcohol use. *N Engl J Med.* 2005;352:596–607. Used with permission.

economic cost of the intervention was \$205 per patient, for a benefit-cost ratio of 5.6:1.²⁵ The same research group followed patients 48 months after their interventions and measured three different ways that patients had significantly reduced alcohol use compared with the control group.²⁶ The benefit-cost ratio for future health care costs was estimated to be 4.3:1. Screen-positive subjects from a community-wide screening program in Tromsø, Norway were given a brief alcohol intervention in 1986. Mean serum GGT values for these subjects in 1995, nine years later, were significantly lower than their baseline values and reductions were significantly greater than for a control group.²⁷

Sufficient evidence has accumulated for the US Preventive Services Task Force to recommend “screening and behavioral counseling interventions to reduce alcohol misuse... by adults, including pregnant women, in primary care settings.”²⁸ As evidence of effectiveness mounts in other clinical settings, varied expert and consensus groups suggest that screening and brief interventions be extended to trauma centers.^{29–33} Recommendations from these proceedings suggest that research funds be broadly allocated. Rather than expend virtually all funds on efficacy trials in a few academic trauma centers, implementation studies on screening and brief intervention methods should be funded and tailored to

real world trauma care settings to increase efficiency and effectiveness in those settings.³⁴

Enter Epidemiologic Research

In an effort to evaluate treatment programs, studies enrolled patients who presented for treatment of substance use problems. Using modern scientific techniques, these studies led the way to understanding that brief alcohol and drug counseling could be effective. However, it wasn’t until population-wide studies were implemented that greater understandings of the total societal effects of alcohol were appreciated. In 1961, Kerr White showed studies based only on patients treated in university medical centers are limited and biased in their ability to obtain an accurate impression of health problems in the community because “. . .in a month, only 0.0013% of the “sick” adults [1 out of 750]...or 0.004% of the [medical] patients [1 out of 250] in a community are referred to university medical centers.”³⁵ This epidemiologic shift in thinking became evident in the late 1950s when epidemiologists at the Alcohol Research Group (ARG) in Berkeley, California, began to collect and analyze data from general-population surveys on drinking behavior.³⁶ In 1969, *American Drinking Practices* was the first published study “to describe drinking practices and their correlates on a ran-

Table 1. Definitions of Unhealthy Alcohol Use.*

Category of Use	Prevalence (%)	Definition and Features
Risky Use	30	For women or persons >65 years of age, >7 standard drinks per week or >3 drinks per occasion; men ≤65 years of age, >14 standard drinks per week or >4 drinks per occasion; there are no alcohol-related consequences, but the risk of future physical, psychological, or social harm increases with increasing levels of consumption; risks associated with exceeding the amounts per occasion that constitute “binge” drinking in the short term include injury and trauma; risks associated with exceeding weekly amounts in the long term include cirrhosis, cancer, and other chronic illnesses; “risky use” is sometimes used to refer to the spectrum on unhealthy use, but usually excludes dependence; one third of patients in this category are at risk for dependence. [†]
Problem Drinking	Varies [‡]	Use of alcohol accompanied by alcohol-related consequences, but not meeting ICD-10 or DSM-IV criteria; sometimes used to refer to the spectrum on unhealthy use, but usually excludes dependence.
Alcohol abuse, harmful use	5	In DSM-IV, recurrence of the following clinically significant impairments within 12 months: failure to fulfill major role obligations, use in hazardous situations, alcohol-related legal problems, or social or interpersonal problems caused by, or exacerbated by alcohol; in ICD-10, physical or mental health consequences only.
Alcohol dependence, alcoholism	4	In DSM-IV, clinically significant impairment or distress in the presence of three or more of the following: tolerance; withdrawal; a great deal of time spent obtaining alcohol, using alcohol, or recovering from its effects; reducing or giving up important activities because of alcohol; drinking more or longer than intended; a persistent desire or unsuccessful efforts to cut down or control use; continued use despite having a physical or psychological problem caused or exacerbated by alcohol; ICD-10, similar definition.

* Data are from Department of Health and Human Services,³⁷ Whitlock et al.,³⁸ the US Preventive Services Task Force,³⁹ the World Health Organization,^{40,41} the American Psychiatric Association,⁴² and Grant et al. ICD-10 denotes the *International Classification of Diseases, 10th Edition*, and DSM-IV, the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition*.

[†]A standard drink is approximately 12 to 14 g of ethanol, which corresponds to 12 oz of beer, 5 oz of wine, or 1.5 oz of 80-proof liquor. The thresholds in the table do not apply to children, adolescents, or pregnant women; to persons taking medication that interacts with alcohol or engaging in activities that require attention, skill, or coordination (e.g., driving); or those with medical conditions that may be affected by alcohol (e.g., gastritis or hepatitis C). For all these groups, the healthiest choice is generally abstinence. The term “binge drinking” is sometimes used to mean heavy use that is prolonged (>1 day), with cessation of usual activities. It is also used to refer to consumption that exceeds the specified limits per occasion.

[‡]Because the definition of problem drinking varies among studies, estimates of the prevalence also vary.
From Saitz R, *Unhealthy alcohol use. N Engl J Med. 2005;352:596-607. Used with permission.*

dom sample of the US population.”³⁶ In the ensuing four decades, ARG implemented 11 national surveys; analyses based on these surveys helped establish the public health approach to alcohol problems. In the process, this population perspective changed conceptual models about alcohol misuse and its consequences. In the 1970s, the federal government created research institutes to address alcohol and drug issues—the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA). These agencies not only support empirical research on treatment methods, but they also support studies of substance use behavior and associated health and social outcomes in the general population.

Risky and Problem Drinkers

Population-based studies revealed two new groups of drinkers. The first group engages in risky drinking (Table 1).^{37–43} This group includes drinkers who have not experienced alcohol-related harm, but are drinking at levels empirically shown to elevate their risks for experiencing harm in the future. The second group engages in problem drinking—

levels of consumption associated with harm, but not meeting the diagnostic criteria for alcohol abuse or dependence. The pyramid in Figure 1 shows the full spectrum of alcohol use; areas in each category within the pyramid reflect the prevalence of each type of drinker. Before population studies were implemented, the size of the two new categories, risky and problem drinkers, was not understood; researchers were not studying the substance-use problems of these groups, and the treatment community was not addressing their needs. Even though, on average, the problems of individual risky or problem drinkers are less severe than the problems of harmful and dependent drinkers, the number of risky and problem drinkers is vastly larger and creates enormous social, legal, medical, and economic problems. Of all the alcohol-related problems seen in EDs and trauma centers, the majority of these problems are experienced by risky and problem drinkers—not addicted patients.

BROADENING THE BASE OF TREATMENT

In 1990, an Institute of Medicine report summarized the knowledge base in the field of alcohol treatment in a land-

Table 2 The Alcohol Use Disorders Identification Test: Self-Report Version.⁴⁵

Patient: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential, so please be honest.

Place an X in one box that best describes your answer to each question.

Questions	0	1	2	3	4
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1-2	3 or 4	5 or 6	7 to 9	10 or more
3. How often do you have ≥ 6 drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested that you cut down?	No		Yes, but not in the last year		Yes, during the last year

mark tome called *Broadening the Base of Treatment for Alcohol Problems*.⁴⁴ This report devotes a chapter to the issue of “what is being treated.” The authors consciously used “alcohol problems” in the title of their report to convey the importance of treating the full range of negative consequences associated with alcohol use, from risky drinking to addiction. “Broadening the base” in the title emphasizes the same message, the critical need to expand the focus of treatment from individuals with severe, chronic problems to include individuals with acute, intermittent, and mild-to-moderate problems. The report describes “the preventive paradox”: “If the alcohol problems experienced by the population are to be reduced significantly, the distribution of these problems in the population suggests that a principal focus of intervention should be on persons with mild or moderate problems.”⁴⁴ Even though this statement does not exclude the treatment of addicted individuals as a legitimate concern, the statement is clearly paradoxical from the perspective of prevailing conceptual models, which tend to ignore individuals with mild and moderate problems almost completely. Therefore, a shift toward making these groups a principal focus of intervention activities is not just “broadening the base,” but also a recommendation for a major change in prevailing beliefs.

The report proposes a two-part treatment system. One part is the established specialist treatment system designed to meet the needs of alcohol-dependent individuals. The second part is a

new proposal which can operate in a variety of community settings (medical, social service, and workplace). In the community-based part of the treatment system, nonspecialists screen individuals for alcohol problems and provide brief, onsite counseling to most who screen positive; first, to help them become aware of their problem, and second, to motivate them to change their behavior. The balance of screen positive individuals, a much smaller number, has severe problems, a prior history of dependence (addiction), or comorbidity such as liver damage or mental illness.⁴⁵ This group also receives brief counseling, but the goal is to motivate them to enter the specialist treatment sector where the goal is typically abstinence.

Screening for the Problem

Accurate identification of patients with substance use problems is a required first step before help can be provided. Given the pervasive and subtle nature of the prevailing dispositional disease model, it is not surprising that physicians are predisposed to identify only patients with the most severe substance use problems. Research indicates, however, that physicians are unable to reliably identify patients with alcohol problems, even patients who are alcohol dependent. In one study,⁴⁶ trauma surgeons, surgical house staff, and emergency department nurses who relied on clinical suspicion to identify intoxicated and alcohol-dependent trauma patients missed 23% of acutely intoxicated patients, almost 33% of severely injured, chemically paralyzed, or intubated patients,

and more than 50% of patients with positive self-report screening tests—overall, a very poor showing. Specificity was poor too. Providers often suspected young males and disheveled, uninsured, or low-income patients of intoxication, and falsely identified 26% of such patients as alcoholic. Apparently, obvious signs of intoxication or disheveled appearance are not particularly reliable. An equally important result was the number of patients with alcohol problems who were missed. A statewide study of emergency departments in Tennessee estimated that 27% of adult ED patients need substance abuse treatment, but that only 1% will have a diagnosis of an alcohol- or drug-related problem in their charts.⁴⁷

Part of the difficulty in identifying patients with alcohol problems is that the target is too narrow; it's either alcoholism or intoxication. Additionally, a large proportion of substance use problems in trauma and ED patients, whether severe or moderate, are occult. Consequently, screening methods designed to identify patients across the complete severity spectrum are needed. For this reason, a critical element of the community-based part of the proposed treatment system is public health-style screening rather than case finding. Case finding depends on clinical suspicion to identify patients with problems; "suspect" patients are referred to specialists for assessment and diagnosis. Public-health screening applies a uniform, routine screening procedure to a predefined population. The goal is not to diagnose, but to measure level of risk for substance use problems and to initiate a response tailored to the individual's risk level.

Screening Instruments

A variety of screening instruments for alcohol problems have been developed, evaluated in clinical settings, and used in routine practice. The Alcohol Use Disorders Identification Test (AUDIT, Table 2) is well studied, reliable, valid, and practical.^{48,49} It taps three domains—alcohol consumption, alcohol-related harm, and alcohol dependence symptoms—and evaluates the level of risk for alcohol problems. Unlike the CAGE Questionnaire,⁴⁸ probably the most widely known brief screening instrument for alcohol dependence, each AUDIT question has multiple rather than dichotomous response categories, so the AUDIT provides not only a broader and more continuous measure of risk than the CAGE, but also enough personal information to help interventionists segue from the screening interaction into a brief intervention. Note also that the CAGE is typically used to identify individuals who are alcohol dependent; the AUDIT targets a much broader spectrum of alcohol problems and allows earlier intervention. One problem with the AUDIT is that it has 10 questions and may be too time consuming for effective use in acute care settings. However there are many different screening strategies, many of which are presented by Babor and Kadden in these proceedings.⁵⁰

THE NEW TREATMENT MODEL

The Institute of Medicine's report integrated decades of research into a new, carefully articulated treatment and nosologic paradigm, a blueprint for improving treatment across the spectrum of alcohol problems. However, the alcohol problems model is not yet familiar to the general public, the substance-use treatment industry, or physicians. In general, the public's understanding is still too narrow, with the locus of the problem on addicted individuals. By introducing the concept of alcohol problems and by encouraging screening and brief intervention in community settings, the Institute's report recast the prevailing conceptual model to include the whole population. Epidemiologists, particularly, have begun to realize that if society could, in the blink of an eye, miraculously "cure" its harmful and dependent drinkers, the "alcohol problem" would still not be solved. In fact, the job would not even be half finished.

Several problems are associated with the more narrowly defined dispositional disease model. The dispositional disease model is dichotomous—either an individual is an alcoholic or not. This dichotomy distracts us from acknowledging that risks associated with excessive drinking are distributed broadly and continuously throughout the population. By focusing only on alcoholics, we ignore the bulk of society's alcohol problems. The dispositional disease model also obscures the knowledge that alcohol is more than a drug of addiction. It is a neurotoxin—a poison that, after repeated exposure, weakens and kills neurons. Edwards lists five ways in which alcohol is a poison and states that, "What we are seeing here is the capacity of a simple molecule to interfere with, or in some way hijack, the functioning of very complex brain systems."² The dispositional disease model completely ignores the importance of public policies that influence an individual's alcohol consumption. For example, higher beverage alcohol taxes decrease consumption, even for the heaviest drinkers.⁷ Public policies that restrict access to alcohol—for example, laws that control the density of retail sales outlets and bars, and their hours, or laws that control the sale of alcohol in restaurants—influence when, where, and how much people drink. Another issue arises because the dispositional disease model focuses on addiction and for that reason, it appropriately promotes abstinence. However, focus on addiction detracts from the need to define and disseminate consumption guidelines for the general population.^{51,52}

Despite being a major step forward, the two-part treatment system recommended in the Institute of Medicine's report does not present a comprehensive public health model. Although the two-part treatment system moves from the dispositional disease model's almost total focus on the host (the addicted drinker) to enlarge our understanding of the risky nature of the agent (alcohol) for drinkers who are not addicted, the focus is treatment not prevention. It does not describe prevention strategies, which are critical components of a comprehensive approach. The goals of prevention com-

ponents would be to prevent excessive consumption among all drinkers—addicted or not. It would also highlight the importance of early intervention to prevent risky and problem drinkers from becoming harmful and dependent drinkers.

FUTURE STEPS

Although the papers presented at the 2003 conference and published in this issue of *The Journal of Trauma* address many issues regarding treatment and prevention of substance use disorders in trauma centers, some important questions remain unanswered or in need of clarification, such as, “Exactly what is a motivational intervention?”⁵³; “How do we know which patients are ready to change?”⁵⁴ and, “Would legalization of drugs solve drug-related problems in trauma centers or society?”⁵⁵ After the conference, the editors commissioned papers (included in this supplement) in an effort to answer these questions. In addition seven recommendations, carefully edited and approved by the steering committee, emerged from the conference (see page S37–S42).

Society has contracted with trauma surgeons to care for its most severely injured patients, and trauma surgeons have responded by developing the most advanced system of trauma care in the world. The trauma patient population is at extremely high risk for alcohol and drug problems. In many instances, these substance-use problems are responsible, or partially responsible, for the events that precipitated the trauma center admission. These proceedings underscore the magnitude and importance of the opportunity that trauma centers provide in the treatment of these serious problems and help us understand why it is in society’s best interest to implement interventions in medical settings where the prevalence of substance use problems is highest. However, it will take more than trauma surgeons and their professional organizations to knock down policy, legal, professional, financial, and knowledge barriers. Trauma surgeons will need help from substance use researchers, hospital administrators, insurance companies, advocates, and policy makers. Decision makers in federal agencies and foundations must also pay greater attention to this opportunity.

Trauma surgeons, emergency physicians, and nurses who treat patients in acute care settings have a difficult job. They treat society’s most acute and complicated medical problems 24 hours a day, 7 days a week, and realize that alcohol and drug problems are inextricably linked with their daily work. Many voluntarily accept responsibility for addressing these problems. In the recommendations presented in these proceedings, conference participants—mostly trauma surgeons—point the way forward for interventions in trauma centers. The rest of us—those of us whose daily work is outside the trauma center—must accept our responsibility to help address the substance use problems heaped at the trauma center door.

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Alcohol Interventions in Trauma Centers: The Opportunity and the Challenge

Larry M. Gentilello, MD

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The history of trauma care in the United States has been one of extraordinary success. A committed group of leaders laid the foundation for nationwide implementation of regional trauma systems. Their studies demonstrated that specialized trauma care reduces mortality after major injury. The most notable study compared motor vehicle crash victims treated in Orange County with crash victims treated in San Francisco County.¹ Patients injured in San Francisco County were transported to a trauma center, whereas patients injured in Orange County were transported to the nearest hospital. A panel of experts blinded to where patients were treated reviewed the medical and autopsy records of all patients who died. Although patients treated in Orange County were younger and less severely injured, one third of the brain injury-related deaths and two thirds of the nonbrain injury-related deaths in that group were classified as preventable (i.e., a result of inadequate expertise or resources). Only one death was so judged among those patients in San Francisco County.

The founders of modern trauma care did not rest with these findings. They required hospitals maintain a trauma registry to facilitate research and to analyze outcomes. A remarkable set of standardized patient care protocols were developed, as embodied by the Advanced Trauma Life Sup-

port program.² Trauma centers were also required to document adherence to rigorous quality improvement programs. Finally, trauma surgeons and their colleagues in other specialties generated considerable public and political support, which led to the development of regionalized trauma systems in most of the heavily populated regions, although not in every state. Because of these efforts, the preventable death rate in trauma centers has been reduced from 40% 30 years ago to 4% or less today.

The current low preventable death rate suggests that future reductions in trauma mortality in regions served by trauma centers are not likely to result from further attempts to improve the process of delivering trauma care. In a report subtitled “As Good as it Gets,” Hoyt and colleagues studied trauma mortality over a 12-year period at a single institution. Despite rigorous efforts to improve the quality of care and implement new protocols, the incidence of preventable deaths and major complications remained the same. The researchers concluded that within a mature trauma system, current methods to reduce trauma mortality appear to have reached the limits of their effectiveness.³

It is also unlikely the discovery of new and better treatments will considerably reduce mortality among trauma patients. Stewart et al. analyzed 753 deaths at a Level I trauma center in San Antonio.⁴ Over 40% of patients who died had CPR on or shortly after arrival to the emergency department. Traumatic brain injury caused most deaths (51%); most of these patients had an initial Glasgow Coma Scale score of 3 or 4, suggesting the presence of a nonsurvivable brain injury at the time of admission. Stewart et al. concluded that nearly 90% of in-hospital trauma deaths occur in patients who have injuries that are physiologically and anatomically not survivable, and consequently, further improvements in trauma care will not change their outcome.

Deaths that do not occur immediately as the result of nonsurvivable injuries occur later in the intensive care unit as a result of acute respiratory distress syndrome, sepsis, multiple organ failure, secondary brain injury, or pulmonary embolism. These late deaths account for only 6% of in-hospital trauma patient deaths.⁵ In other words, even if all research efforts and new therapies aimed at preventing or curing these complications were successful, the percentage reduction in trauma mortality would not be large.

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From the Department of Surgery, University of Texas Southwestern Medical School, Dallas, Texas.

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Address for reprints: Larry M. Gentilello, MD, Division of Burns, Trauma and Critical Care, University of Texas Southwestern Medical School, 5323 Harry Hines Blvd., Dallas, TX 75390-9158; email: larry.gentilello@utsouthwestern.edu.

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Even these statistics overstate the potential for medical advances to reduce mortality, because more than half of all trauma deaths occur at the scene of the injury—not in the hospital. A recent analysis of trauma patient autopsy reports concluded that most field deaths occur within the first minute after injury, before any health care provider has had an opportunity to respond.⁵ Deaths occurring this rapidly are unlikely to be prevented by improved treatment in the foreseeable future. Reduction of injury-related mortality will only come from prevention efforts aimed at reducing the incidence of the “causes” of injuries.

These findings suggest that it is time for trauma centers to pursue innovative strategies to further reduce the risk of injury-related morbidity and mortality. The most promising approach would be to focus on prevention and recurrence of injuries. Although regionalized trauma care has existed for several decades, injury prevention is a relatively new field.

ALCOHOL, DRUGS, AND TRAUMA CENTERS

One of the first steps in developing any prevention strategy is to determine the vector or environmental factor that causes the disease. Trauma centers have always known that alcohol use is the leading cause of the injuries they treat. Pooled data from six regional trauma centers involving 4,063 patients indicate that 40% of patients have a positive blood alcohol concentration (BAC) at admission.⁶ If drug use is included, up to 60% of patients test positive for one or more intoxicants.^{6,7}

Most trauma patients with a positive BAC meet criteria for having an alcohol problem. A study by Rivara and colleagues at Harborview Medical Center in Seattle supports this conclusion. They administered the Michigan Alcohol Screening Test (MAST), a widely used questionnaire to identify patients with potential alcohol problems, to 2,657 intoxicated trauma patients—75% screened positive.⁸ Alcohol problems and resultant high risk of injury are so common in trauma patients that 26% of patients with a negative BAC also screen positive on the MAST, which is nearly three times the screen-positive rate of the U.S. population.^{8,9} It is unlikely that significant progress in injury prevention will occur if the leading cause of injury is not addressed. Therefore, any realistic approach to reducing injuries must address alcohol problems through medical, legal, and public policy means.

OPPORTUNITY

There is substantial evidence that alcohol problems are treatable and that intervention does work. The Cochrane Library is a regularly updated collection of systematic reviews of health care interventions. Reviews are highly structured, with evidence included or excluded on the basis of explicit quality criteria. The 2004 issue contains a review, “Interventions for Preventing Injuries in Problem Drinkers,”⁹ which reports that interventions for problem drinking reduce incidences of suicide attempts, domestic violence, falls, drinking-related injuries, and injury hospitalizations and

deaths—reductions range from 27% to 65%. Trauma centers do not routinely provide interventions for problem drinking to prevent recurrent injuries. This constitutes a missed opportunity to reduce trauma morbidity and mortality.

In the past 10 years, significant energy, funding, and emphasis have been directed toward motivating primary care physicians to incorporate screening and brief interventions into their practice. In any given year, patients with alcohol problems are more likely to receive treatment for an injury rather than to visit a primary care doctor for a medical problem—23% require an emergency department visit and 4% require hospital admission.¹⁰ Furthermore, an average size metropolitan region will have hundreds of primary care physicians but only a few trauma centers. Trying to change the practice of a diverse group of primary care physicians, although a worthwhile goal, has been likened to trying to transport frogs in a wheelbarrow. In contrast, incorporating brief interventions into trauma care within a given region only requires changing the practice patterns in a few hospitals.

Trauma centers have another characteristic that provides them with a unique opportunity to reduce injuries through alcohol interventions. Unlike most medical services, trauma centers are “franchised” by the state or county. Hospitals that choose to participate in trauma care must undergo a site visit to demonstrate that certain criteria are met (i.e., specialty availability, equipment, facilities, and range of services). Most states have adopted the criteria developed by the American College of Surgeons Committee on Trauma, as outlined in the monograph *Resources for Optimal Care of the Injured Patient*.¹¹ Almost no other type of medical service is overseen and franchised in this manner. The franchise characteristic and the verification process that trauma centers must undergo ensures that improvements in trauma center practices can be incorporated systematically. Once new therapies are demonstrated as best trauma care, the American College of Surgeons Committee on Trauma can require the nation’s trauma centers to adopt these practices.

CURRENT STATUS

There is growing support for the provision of alcohol interventions in trauma centers. A recent survey conducted by Schermer and colleagues indicates that 83% of trauma surgeons believe a trauma center is an appropriate place to provide alcohol interventions.¹² Most surgeons (86%) also agree that it is important to talk to injured patients about their harmful alcohol consumption. Screening trauma patients for BAC was rare a decade ago. Currently, however, three of four trauma surgeons who responded to the survey indicate that they often or always measure BAC in injured patients.

A variety of federal, expert, and consensus group panels conclude that the scientific basis for recommending routine screening and intervention in trauma centers has already been established and that it is time to move beyond clinical trials and toward national implementation.^{13–20} This conference,

along with one sponsored by the Centers for Disease Control and Prevention and other federal agencies on alcohol interventions for injured patients treated in the emergency department, demonstrate the expanding interest in this field on the part of multiple stakeholders.²¹

THE CHALLENGE

Many trauma surgeons have been practicing long enough to have witnessed the development of a prehospital system that can be activated from virtually anywhere in the United States by using the integrated 911 emergency call system. Activating this system results in transport to a trauma center from all but the most remote areas of the country. Nearly 1,200 hospitals dispersed in all 50 states are designated as trauma centers by a state or regional authority, or verified by the American College of Surgeons Committee on Trauma. The number of trauma centers has more than doubled since 1991.²² The extensive staffing, structural, equipment, and organizational changes required to make this happen did not occur because of an abundance of funding available to the health care system. Changes occurred because trauma surgeons are tireless advocates who insist on nothing less than optimal care of the injured patient.

The intense focus on acute care was appropriate for that time and for that era. The document entitled *Optimal Resources for Care of the Injured Patient*, by the American College of Surgeons Committee on Trauma, defines optimal care. We now know that optimal care cannot be defined as the expenditure of an extraordinary amount of personal and financial resources to mend our patients' broken bones and patch up their internal organs only to have them return to our streets and highways with the same underlying problem. Treatment of the injury without treatment of the primary underlying substance use disorder enables patients to continue behavior that causes injury (sometimes permanent or fatal injury) to themselves or other people. "Optimal care" should be redefined to include prevention efforts. These efforts must address the burden of alcohol and drug problems among our patients, and the current generation of trauma surgeons should, as did their forebears, rally to meet this challenge.

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Brief Motivational Interventions: An Introduction

Craig Field, PhD, MPH, Daniel W. Hungerford, DrPH, and Chris Dunn, PhD

This article is an introduction to brief motivational interventions, which is an effective strategy to address alcohol-use disorders and the public health issues these disorders present. In this article, we summarize core concepts and our clinical ex-

periences. To explore the contrast between these interventions and more traditional approaches to patient-provider interaction, the article describes strategies used in brief motivational interventions, answers common questions about the pro-

cess, and provides references and resources for those who would like to learn more.

Key Words: Brief intervention, Motivation, Ambivalence, Change.

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Brief motivational intervention differs from other patient-provider interactions in that the interviewer explores a patient's motivation to change rather than prescribes a specific course of action.¹ Ambivalence about change is a common phenomenon among those with alcohol problems. Even among patients committed to abstinence, ambivalence or mixed feelings about drinking and changing behavior may fluctuate from moment to moment. Because many patients are ambivalent about stopping or changing potentially harmful behaviors, brief motivational interventions are structured to focus on the patient's perspective of the problem and what, if anything, the patient wants to do about it. Ambivalent patients might resist being labeled as alcoholics, problem drinkers, or being in denial. However, if patients do not feel judged, most will be open to at least discussing their alcohol use and possibly considering the goal of avoiding future injuries and hospitalization.

In trauma centers, brief interventions are opportunistic. Although injured patients are not actively seeking treatment for alcohol problems, motivational interventions present op-

portunities to capitalize on alcohol-related injury to help motivate changes in drinking behavior. In contrast to traditional approaches that offer only brief advice and are less patient-centered, motivational interventions avoid confrontation or direct persuasion. Confrontational tactics tend to discourage a patient's motivation to change because the emphasis is on education or the authority of the medical staff, not on individual responsibility and the patient's desire to change. When properly implemented, brief motivational interventions shift the focus from the provider to the patient; the patient is seen as the expert. Therefore, the primary task in conducting motivational interventions should be to elicit ideas from patients about the need for change rather than to confront patients about the reasons change is needed. Most patients already know that change is required, but they are either unable or unwilling to take action. The motivational intervention can be the catalyst in countering this ambivalence.

What Is a Good Way to Begin a Motivational Intervention?

The interviewer should begin with an opening statement to indicate that the ensuing discussion about alcohol use will be different from interactions the patient may already have had with medical staff. In this encounter the patient, not the interviewer, will control the agenda of the discussion. The patient also needs to know how much time the discussion will take, along with the goals and expectations in broaching the topic of alcohol use. The statement should conclude with an open-ended question or statement designed to elicit a response from the patient. Here is an example:

'We've talked a lot about your injury, and I've answered your questions about what you need to do to recover from the surgery. Right now, I would like to take about 15 or 20 minutes of your time to hear about your impressions of what happened, how alcohol may have been related to your injury, and what, if anything, you can or want to do to keep this from happening again.'

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From the University of Texas School of Public Health, Southwestern Medical Center at Dallas, Dallas, Texas (C.F.), Centers for Disease Control and Prevention, National Center for Injury Control and Prevention, Atlanta, Georgia (D.W.H.), and Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, Washington (C.D.).

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Address for reprints: Craig Field, PhD, MPH, Assistant Professor, University of Texas School of Public Health, Southwestern Medical Center at Dallas, 5323 Harry Hines Blvd., V.8, Room 106B, Dallas, TX 75390-9128; email: craig.field@utsouthwestern.edu.

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What Are the Basic Strategies of Brief Motivational Interventions?

Four fundamental strategies are typical of patient-centered interventions. These strategies (represented by the acronym OARS) will help the interviewer to listen, to elicit important information, and to build rapport with the patient and should be used throughout the intervention.

Open-Ended Questions

In contrast to motivational interventions, typical medical interviews use closed-ended questions requiring simple yes or no answers, which tend to yield limited information. Open-ended questions invite patients to explore the reasons they have a problem and to elaborate in their answers. For example, 'What's drinking like for you?' or 'How do you feel about your drinking?'

Affirmations

Highlighting the patient's individual strengths, personal values, and goals by using compliments or encouragement helps build rapport. Affirmations should be specific and genuine. Examples may include, 'It sounds like your family is really important to you' or 'Showing up at work regularly and on time appears to be an important goal for you.'

Reflections

Short restatements of a patient's thoughts and feelings build rapport and ensure effective communication between the interviewer and the patient. By repeating the patient's responses, interviewers can be assured they correctly understand what the patient is saying. Reflections can be verbatim (restating the patient's own words) or paraphrasing statements.

Summaries

Summaries combine two or more patient statements from the larger conversation and are transitional tools that can be used to determine whether the interviewer and patient have communicated effectively. In other words, summaries ensure that interviewers and patients are on the same page. At this point, interviewers can correct any misperceptions they might have about the patient's responses.

'The whole is greater than the sum of its parts'; summaries often add meaning or present a clearer picture of what the patient has disclosed. As a result, patients may be encouraged to further explore their situations.

What Is Empathy, and Why Is It So Important?

Empathy is quite different from sympathy, which is a form of communication that accepts, endorses, or condones behavior. The goal of empathic communication is to accurately understand the patient's perspective and behavior. To convey empathy to the patient, interviewers should use reflective statements like: 'It sounds like you're saying...' or

'What I hear you saying is that...'. Empathy is an iterative process guided by patient feedback. Because this process allows interviewers to be emotionally neutral and nonjudgmental, empathy builds patient trust and generates useful information that can be used to enhance the success of the intervention.

As discussed in the previous section, the elements of OARS are techniques to ensure that the interviewer understands the patient's perspective and expresses empathy. An empathic style is more important than any single technique and is a very strong predictor of patient outcomes. In a study by Miller and Baca,² the more empathic the therapist had been during interview sessions, the less the patient drank at follow-up. Conversely, another study by Miller et al.³ demonstrated that the more frequently the therapist confronted the patient, the more the patient drank. Empathy and hope play a critical role in patient outcomes. If the interviewer does not communicate empathy, a therapeutic alliance will not be established. Consequently, more specific tools or concrete techniques are unlikely to be helpful if empathy is not expressed.

How Can Interviewers Gather Specific Information About a Patient's Experiences?

Once rapport has been established through empathic listening, interviewers can ask specific questions, such as the following examples, about the behavior under discussion.

1. What is a typical day like for you on a day when you drink?
2. How important is it to you to make a change in your drinking? How confident are you that you can make a change?
3. What do you like and dislike about your drinking habits?
4. How would your life be different if you were to change your drinking?
5. What are some of the most important things to you?

Typical Drinking Day

Unlike a closed-ended question like 'Do you drink?', which leads to a simple yes or no answer, 'Tell me about a typical day for you on a day when you drink?' is an open-ended way of encouraging patients to describe the who, what, when, where, with whom, and why of their drinking. It provides valuable insights into patterns of consumption, reasons for drinking, and potential triggers for use. Not only does this information provide momentum to the discussion, it will prove useful if a change plan is later developed. One common pitfall is the temptation to focus on exactly how much or how often patients drink. Although consumption patterns are informative, the focus of the intervention should be on generating information about the problems alcohol use creates and in determining the level of motivation to change behavior.

Importance and Confidence Questions

‘On a scale of 0 to 10, where 0 is not at all important and 10 is extremely important, how important is it for you to change your drinking habits?’ and ‘Again, on a scale of 0 to 10, if you decided to change your drinking habits, how confident are you that you could?’

These questions provide a quick way for the interviewer to determine patient motivation and confidence levels; the patient may even initiate change talk. For example, a patient might not think that changing his drinking habits is very important and, consequently, rate the importance question as a 3 on the 0 to 10 scale. If the interviewer responds by asking, ‘Why are you a three and not a zero?’, the patient is set up to explain why he is somewhat motivated to change. The interviewer should listen very carefully to the words the patient uses, because the patient’s response can often be used as reflective statements later. By repeating the patient’s own ideas, the interviewer is perceived as more neutral than when advice is interjected. The next logical step in this interaction is to ask, ‘What would it take for you to get to a higher number?’

This strategy also works for helping less-confident patients focus on experiences in which they did feel confident. Reinforcing the patient’s sense of self-efficacy is important in motivating behavior change. Otherwise, the motivation to change behavior may be stymied.

The importance and confidence questions provide a great deal of background information, which helps interviewers prioritize the elements of the intervention. For example, if a patient gives importance a high score, the interviewer may want to focus on building confidence or discussing a change plan. However, if a patient does not believe that change is important, these strategies may be counterproductive. Raising the importance of change becomes the task at hand. Although many patients may not see the need to quit drinking permanently, they may understand and may be willing to discuss the potential benefits of abstaining for a defined period of time, reducing how much or how often they drink, or changing the context in which they drink. Sometimes the issue is not a patient’s overall level of motivation but determining specific parts of the behavior a patient is willing to or interested in addressing.

Pros and Cons

The following questions provide other ways of exploring patient motivation: ‘What are some things you like about drinking? What are some things you don’t like about drinking?’ (preferably in this order). This discussion becomes essentially a cost benefit analysis of current behavior—evaluating the disadvantages and advantages of the status quo versus that of change. As the interviewer begins to understand the patient’s perspective, it may become apparent that important personal goals or values conflict with the patient’s choice to drink heavily. Identifying and discussing the im-

portance of values and achieving goals can change how injured patients perceive themselves, ultimately leading to behavior change.

Values and Goals

Finally, interviewers should identify how the patient’s personal values are connected to the patient’s goals. For example, it may be easier to move toward certain behaviors (becoming physically healthy) than to move away from a behavior (stopping drinking). People with alcohol problems usually need a reason not to drink. That reason may be family, job performance, or personal health and well-being. Listening for and affirming these values will help move patients toward change. Phrases such as, ‘You’re the type of person that...’, ‘You see yourself as...’, or simply ‘is important to you’ achieve this quite succinctly. Another way of motivating change is to ask the evocative question, ‘If you could wake up tomorrow to a better life, what would it look like? How would it be different?’, or, more specifically, ‘In a year or so when your injury has healed, where would you like to be?’

One of the objectives of brief intervention is closing on good terms. This leaves the door open for future interventions by other health care workers and increases the likelihood that patients will seek treatment as they become more motivated to address their drinking problem. Behavior change does not happen all at once. By helping patients identify and affirm their values and goals, the interviewer can ensure that the intervention ends on a positive note.

What If Patients Are Not Motivated to Change?

Physicians are trained to diagnose a problem and treat it. Therefore, it may be very difficult for them to respect a patient’s autonomy, particularly when the patient chooses not to change behavior or refuses to commit to any particular course of action. The physician’s natural, almost instinctive reaction is to assume the expert role and provide information and advice and perhaps a referral to a specialist, hoping that these approaches will motivate patients to change harmful behavior. Efforts such as these usually increase the patient’s resistance to change.

The section below describes how to determine when it is appropriate to give advice about changing behavior. In some circumstances, the same desire for resolution that motivates physicians to give unsolicited advice can propel ambivalent patients toward change. At the very least, showing empathy and closing an intervention on good terms leaves the door open so that patients can pursue treatment at another time. That is, the next time a health care provider broaches the topic of alcohol use with these patients, they may be more receptive.

An injury may make patients more willing to discuss their alcohol use, especially when they were injured while drinking. As a result, they may begin to think about such high-risk behavior and consider changing their drinking hab-

its. This openness should be encouraged. Avoid getting ahead of patients (i.e., rushing them into making commitments). Many patients are in the early stages of change; they either do not believe they have a problem, or they are ambivalent about taking action to change the status quo. Pushing them to prematurely commit to behavior change is counterproductive. Moreover, interviewers should avoid advocating change or worse, resorting to coercion or direct persuasion. Although these strategies are tempting, they often result in the patient arguing for the status quo and presenting reasons for not changing. In contrast, by helping patients to explore the advantages and disadvantages of their current behavior, interviewers can show the discrepancy between current behavior and possible long-term goals or personal values. For more information on the stages of change model, see the article in this issue by Dunn et al.

The critical issue in motivational intervention is not whether patients are motivated to change but in determining what they are motivated to change and why they are motivated to make particular changes. Instead of focusing on why they do not want to change, interviewers should explore the patient's stage of change. The key question for the patient is, 'What, if anything, do you want to do about your drinking?' or 'Where does that leave you?' The patient's responses to these questions will help the interviewer decide the next step, which may involve developing a change plan.

What Is a Change Plan?

A change plan involves identifying specific steps the patient would be willing to take to change drinking behavior, and a timeframe for doing so. If the patient is interested in changing drinking behavior, a change plan can be helpful. However, as mentioned earlier, the decision to develop a change plan is up to the patient; otherwise, it is premature. Before a change plan is developed, the interviewer should identify what specific behavior the patient wants to change and what the patient hopes to achieve by changing that behavior. Developing a change plan is a collaborative effort involving the following steps.

1. Setting specific goals (e.g., stop drinking for a period of time, complete abstinence, drinking less frequently, or drinking less per occasion and avoidance of high-risk situations such as drinking and driving).
2. Identifying high-risk situations and possible obstacles to change (e.g., friends or family who encourage drinking and events and environments that encourage heavy drinking).
3. Identifying strategies and people who can offer support (e.g., a friend or family member who has successfully changed their drinking).
4. Evaluating whether to obtain a more formal assessment or seek additional help (e.g., in- or outpatient treatment, self-help groups, or churches and other support groups in the community).

With patients who are ready to take action, the interviewer should take time to discuss the details of each component of the change plan.

What Is a Good Way to End Brief Motivational Interventions?

Regardless of the patient's level of motivation to change, it is important to close the intervention on a positive note by expressing hope or optimism that change is possible. The interviewer should provide a summary of the patient's perspective of the problem and what, if anything, the patient is willing to change. If patients are ambivalent about their use of alcohol, these summaries may simply contain reflective statements of ambivalence and a recount of both the positive and negative aspects of alcohol use. Specific actions that patients are willing to take or people with whom they are willing to talk, should be included in the summary. In addition, the interviewer should reinforce personal values, goals, and strengths that will facilitate the patient's efforts to change.

When and How Is It Appropriate to Give Advice or Information?

Interviewers may give advice in an attempt to be helpful. However, giving unsolicited advice or information often leads to resistance and should be avoided. In response to this urge, the interviewer should consider whether a particular piece of advice is critical to a patient's safety or if it will promote a patient's motivation to change. Before offering advice, interviewers should first determine what the patient knows about the topic under discussion. For example, if the patient was intoxicated and involved in a motor vehicle crash, the interviewer may want to warn the patient about the effects of driving while under the influence of alcohol. Instead, they could ask, 'What do you know about the effects of alcohol on your ability to drive?' Often, interviewers will learn that patients already know the answer to this question.

When advice is truly appropriate, it should be offered only after obtaining the patient's permission by using the elicit-provide-elicited approach.¹ First, the interviewer must attain the patient's implied or explicit permission to provide information or advice by asking, 'Would you mind if I shared a concern that I have with you?' or 'This may or may not matter to you, but I am worried about your plan to cut down on your drinking. Would you mind if I explained why?' Such questions convey respect for the patient's autonomy. Finally, after interviewers receive permission and provide advice or information, they should elicit the patient's reactions. This allows patients to process the information and determine how well it fits their experience. Equally important, if the advice is ill-suited, patients can reject it with minimal damage to the rapport already established.

Should Patients in Denial Be Confronted?

During a motivational intervention, it is best to avoid argumentation or confrontation, which generally leads to re-

sistance. Resistance is not a fixed personal characteristic of a particular patient, but rather the patient's reaction to a perception that the interviewer is an adversary. For example, when a patient describes reasons for not changing his drinking behavior, the interviewer may be tempted to respond by enumerating reasons for changing. If this happens, the stage is set for the two to harden into adversarial positions. However, if the interviewer interprets resistance as a warning sign that communication is proceeding poorly, changing strategy may avert this resistance. The interviewer can reestablish rapport by using the basic elements of motivational interviewing—OARS.

Why Not Just Prescribe Medication?

Naltrexone and acamprosate help reduce a patient's craving, and consequently, the amount of reinforcement that alcohol provides. Research has supported the use of these medications for the treatment of alcohol disorders.⁵ Naltrexone and acamprosate are approved for this use by the Food and Drug Administration, and the effectiveness of both is currently being evaluated in Project COMBINE.⁶ However, medication should only be used in conjunction with more intensive alcohol treatment methods to enhance compliance, ensure treatment retention, and avoid relapse.⁷ Unless a patient's progress can be monitored for an extended period of time, it may be inappropriate to prescribe such medications in the emergency department or a trauma care setting. Although medications are potentially useful adjuncts to intensive psychosocial treatment for alcohol-dependent patients, patients with less severe alcohol problems, probably most patients presenting to trauma centers, may be unwilling or uninterested in medication as a useful tool for changing their drinking behavior. In these situations, giving a prescription could be as counterproductive as giving unsolicited advice or a referral during intervention. In any case, prescribing a medication should not preclude motivational intervention because medication adherence also depends upon motivation to change.

Which Patients Need More Than a Brief Intervention?

Although most trauma patients will not need specialist treatment, a brief intervention can identify patients that do need additional assessment or treatment and can provide a way to motivate these patients to accept the help they need. More intensive treatment options range from self-help groups, such as Alcoholics Anonymous, to medical detoxification, to outpatient or inpatient treatment, and to long-term residential services. The type of treatment most useful to a particular patient at any given time is, in large part, determined by the patient's preference, treatment history, and access to care. Although many patients in an urban trauma center may not have insurance or community treatment centers may be limited in some areas of the country, Alcoholics Anonymous is ubiquitous and free of charge. Because screen-

ing instruments used with brief interventions are not diagnostic instruments, a comprehensive assessment by a specialized substance-abuse counselor may be warranted to determine the appropriate level of treatment required. Therefore, further evaluation should be a precondition to choosing the most appropriate treatment option. More intensive treatment may be appropriate for some patients who have a history of alcohol or drug dependence, as suggested by previous treatment or liver damage or for those who have failed to achieve goals despite previous counseling.⁸ Others who might benefit from additional treatment are patients with little or no social support for maintaining sobriety, those with a history of severe withdrawal symptoms such as hallucinations or seizures, and those with significant comorbid psychiatric or medical problems.

If patients have experienced or are experiencing one or more of these problems, a comprehensive assessment and, possibly, more intensive treatment may be beneficial. However, this does not give the interviewer license to provide unsolicited advice about treatment or to direct the patient to enter intensive treatment. Treatment and assessment options should be introduced using the elicit-provide-elicited approach described earlier. The patient's frustration and discomfort probably equal the interviewer's concern. As a result, the interviewer can usually capitalize on the topic once the patient broaches it. If the patient has sought previous treatment, the interviewer should ask which treatment was helpful and if the patient feels similar treatment would be helpful now. In this manner, a brief intervention can serve as an effective entry point into more intensive treatment.

How Can the Quality of Motivational Interventions Be Evaluated?

The litmus test of whether interventions are working lies in how the patient talks. Statements like 'I should do something about this,' 'I want to change my drinking,' 'I am going to stop drinking,' or 'My drinking isn't helping me' indicate progression toward change and that the intervention is succeeding. These statements are referred to as change talk, and eliciting them is a major short-term goal of brief motivational interventions.

Objective rating scales of adherence to motivational interviewing are available. Both the Motivational Interviewing Skill Code and the Motivational Interviewing Treatment Integrity assess the interviewer's fidelity to the principles and techniques of motivational interviewing. These measures were developed to encode audio or videotapes of motivational interventions. Feedback from the Motivational Interviewing Skill Code or Motivational Interviewing Treatment Integrity can help guide interviewers in refining their intervention skills and ensure adherence to the principles of brief motivational interventions. For additional information, see www.motivationalinterview.org.

Who Can Provide Brief Motivational Interventions and How Much Training Is Required?

Virtually anyone who is interested and wants to learn motivational interviewing can effectively conduct brief motivational interventions. A medical background is not required, and some programs have successfully used interviewers who do not have college degrees.

Although this article is a reasonable introduction, in-service training is required, and as little as 4 hours up to a day of training is adequate for effective implementation. The original text on this topic is Miller and Rollnick's *Motivational Interviewing: Preparing People for Change*,¹ but *Health Behavior Change: A Guide for Practitioners*⁹ provides additional useful information. Moyers and Waldorf¹⁰ provide an excellent introduction in a single chapter that is more detailed than this article.

Training is available in a variety of forms. A series of videotapes that show patient interviews and illustrate the fundamentals of motivational interviewing is available at www.motivationalinterviewing.org. This website provides access to basic and advanced training workshops available across the country, workshops for groups and institutions, and a list of qualified trainers who are part of the worldwide Motivational Interviewing Network of Trainers. Trainers are available to conduct 2- to 3-day specialized training sessions on site. This type of training is often preferable when an institution begins a brief intervention program and needs to train a number of interviewers.⁴

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The Stages of Change: When are Trauma Patients Truly Ready to Change?

Chris Dunn, PhD, Daniel W. Hungerford, DrPH, Craig Field, PhD, and Barbara McCann, PhD

This article summarizes the Stages of Change model, which identifies five stages that people experience as they gradually move away from engaging in harmful behaviors to sustaining healthy behaviors. Patients in different stages of change need different kinds of interventions. The

Stages of Change model enhances brief counseling interventions for trauma patients with substance use problems because counselors can now accurately choose an appropriate intervention strategy. The authors present three case

studies illustrating the three earliest stages of change most commonly encountered in trauma center patients.

Key Words: Intervention, Precontemplation, Contemplation, Action, Maintenance.

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INTRODUCTION

The Stages of Change (SOC) model describes a sequence of five stages that people with harmful behaviors experience as they gradually move toward sustained, healthy changes in their behavior.¹ This model is innovative because clinicians or interventionists now have at their disposal clearly defined clinical strategies for increasing the motivation of patients regardless of which stage they are in. For injured patients with substance use problems, this model enhances the effectiveness of brief counseling interventions in trauma centers.² To progress from one stage to the next, patients must make changes in how they think and behave. In this paper, we present case studies of injured patients who were in the three earliest stages of change—the stages most commonly encountered during brief interventions in trauma centers—and we describe the corresponding intervention strategies for each that can help motivate patients to progress to the next stage.

For more than 20 years, James Prochaska and Carlo DiClemente have studied how people intentionally make successful changes in harmful behavior, with or without expert assistance. The SOC Model has been applied to at least 12 unhealthy lifestyle behaviors (e.g. excessive drug or alcohol use, smoking, and unhealthy eating).³ In each stage, people have different opinions about the advantages and disadvantages (pros and cons) of change. As people progress through the stages of change, a predictable sequence unfolds. At first, people deny or are unaware that a problem exists, but as the negative consequences of their behavior accrue, they become concerned and eventually decide to try to change their behavior. This is followed by experimenting with new behaviors, that are interspersed with relapses, until finally healthy change is sustained.^{1,3}

Premature focus on action with patients who are not yet ready to change will only provoke resistance. As clinicians shift from telling patients *how* to change to helping them explore *why* change might be desirable, rapport with their patients improves dramatically.⁴

THE STAGES OF CHANGE DEFINED

Although there are five stages in the SOC Model, in trauma centers only patients in the first three stages (*precontemplation*, *contemplation*, and *preparation*) are routinely identified by proactive alcohol and drug screening. Patients in the two later stages, *action* (recently making a change) and *maintenance* (sustained change), have moderated their drinking or stopped drinking completely. Therefore, they are less likely to screen positive.

Precontemplation—Trauma patients who are in the first stage of change have little awareness of the negative impact of their substance use and have no intention of changing their behavior in the foreseeable future. For patients at this stage, the disadvantages of changing behavior clearly outweigh the advantages. A typical patient's response during intervention might be: "Alcohol isn't a problem for me; if anything, it's a

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From the University of Washington, Department of Psychiatry and Behavioral Sciences, (C.D., B.M.), Seattle, Washington, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, (D.W.H.), Atlanta, Georgia, University of Texas School of Public Health, Southwestern Medical Center at Dallas, (C.F.), Dallas, Texas.

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Address for Reprints: Chris Dunn, PhD, 325 9th Avenue, Box 359896, Seattle, WA 98104-2499; email: cdunn@u.washington.edu.

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Table 1 Change Model

Stage of Change	How Patients Evaluate the Pros and Cons of Change	Emphasis of Interventionist on Thinking vs. Doing
Precontemplation: Has no intention of changing within the next six months.	Pros < Cons	Thinking
Contemplation: Recognizes a problem and considers change. Is ambivalent and resists suggestions to take immediate action.	Pros ≈ Cons	
Preparation: Decides and commits to change. Only small behavior changes so far (asks for help, declares intent to others).	Pros > Cons	
Action: Formulates and executes plan but new behavior is unfamiliar. At high risk for relapse. Maintenance: Adapts to new behavior. At low risk for relapse.	Pros >> Cons	Doing

fun way to deal with my boredom. . .” Trauma patients in precontemplation, who binge drink intermittently, do not see themselves as “having a problem,” because their individual pattern of consumption does not meet the stereotype of the alcoholic who drinks every day or craves a drink.

Contemplation—This can be a very uncomfortable stage for patients. Their thought processes simultaneously pull them in two different directions. Patients in this stage of change have become aware of negative consequences associated with their behavior, but still want to preserve and justify their lifestyle. Although change now seems more important, contemplators are not yet committed to taking action. This ambivalence can be clearly heard in their “yes, but” statements and responses: “I suppose I should probably quit drinking, but I’m really not an alcoholic.” Sometimes, an unexpected injury can move patients from precontemplation into the contemplation stage. Even patients in the action and maintenance stages can relapse and return to the contemplation stage.

Preparation—This is the decision-making stage. Patients have progressed through the first two stages, have decided to change their behavior (either to quit or cut down), and are ready to formulate an action plan: “I’m going to quit drinking, and I’m going to go back to AA to do it.” In performing brief interventions, we commonly encounter trauma patients whose injuries convince them to “swear off” their behavior. Although they may sound determined to quit drinking, many of them cannot or will not discuss a serious plan for change: “What do you mean ‘how’ am I going to quit drinking? I just told you that I’ve already quit. I don’t need a plan.” These patients are most likely not yet in the preparation stage. Patients who are truly in preparation can mentally anticipate, and at least formulate, contingency plans to deal with friends and situations that might present obstacles to change.

Action and Maintenance—The final two stages of change are self-defining. Patients are now committed to changing their behavior and are following a personal action plan to sustain their new behavior. In the action stage, new behavior is sustained for less than six months; in the maintenance stage, it is sustained for more than 6 months.^{1,3}

Behavior change programs used to offer action-oriented interventions to almost all at risk individuals, regardless of their motivational levels. For example, programs recommended that they go immediately to specialized treatment or Alcoholics Anonymous. However, this consistently resulted in extraordinarily high no-show or drop-out rates by individuals in the precontemplation or contemplation stages. Instead, they needed an intervention better matched to their readiness levels.⁵ Programs should first help precontemplators and contemplators recognize the consequences of their behavior and resolve their ambivalence about taking action. To offer action-based solutions to all at risk individuals regardless of their motivation to change is inappropriate. Interventions should be matched to each individual’s readiness level.⁵

EMPIRICAL SUPPORT FOR THE STAGE OF CHANGE MODEL

There is strong empirical evidence that the SOC Model can predict changes in how patients evaluate the pros and cons of change as they progress, or fail to progress, from earlier to later stages. A crossover occurs in *contemplation* as the pros of change catch up to the cons and then begin to outweigh the cons in *preparation* (see Table 1). This crossover effect has been consistently identified across the 12 different behaviors previously identified.^{4,6} Among smokers seeking expert help for quitting, those who are in the later stages of change are more likely to quit smoking on their own.⁷ Similarly, patients with alcohol-use disorders who are in the later stages of change respond better to action-oriented addiction treatment than do those in the earlier stages of change.¹ The stages of change accurately predict participation and retention in addiction treatment.⁸ In the earlier stages, patients make *greater changes in their thinking*; those in the later stages make *greater use of changes in their behavior*.^{6,7} For example, a patient progresses from *precontemplation* to *contemplation* by thinking: “*Maybe I was injured because I was drunk and I should consider changing,*” and from *preparation* to *action* by removing beer from the house, staying out of bars, or staying away from friends who drink.

Patients do not necessarily move through the stages of change in a linear sequence. They often move backward, revisiting the *precontemplation*, *contemplation*, or *preparation* stages.^{1,7} Although relapse is not a stage in the SOC Model, per se, it commonly occurs among those with problem lifestyle behaviors such as substance use disorder.

Table 2 Motivational Strategies by Stage of Change

Client's Stage of Change	Appropriate Motivational Strategies for the Clinician
Precontemplation = Not now	Build rapport (Elicit client perception of problem) Provide feedback
Contemplation = Maybe	Weigh pros and cons of alcohol use and behavior change Identify personal values and goals Assess importance and confidence Summarize patient's statements that emphasize change
Preparation = Probably soon	Reinforce commitment to change Clarify patient goals and action plan With permission, offer advice Identify barriers to change Identify social support for change
Action = Now	Reinforce importance of change Define change as process Acknowledge challenge of making change Identify high risk contexts Identify coping strategies and support mechanisms
Maintenance = Forever	Support lifestyle changes Identify non-drinking activities Affirm client's success Define relapse as part of change process Identify plan of action in the event of relapse or slip Identify long term goals
Relapse	Help client reenter cycle of change Define relapse as part of change process and opportunity to learn what works and what doesn't work Refine change plan Encourage maintenance of supportive contacts

Adapted from Treatment Improvement Protocol No. 35.⁹

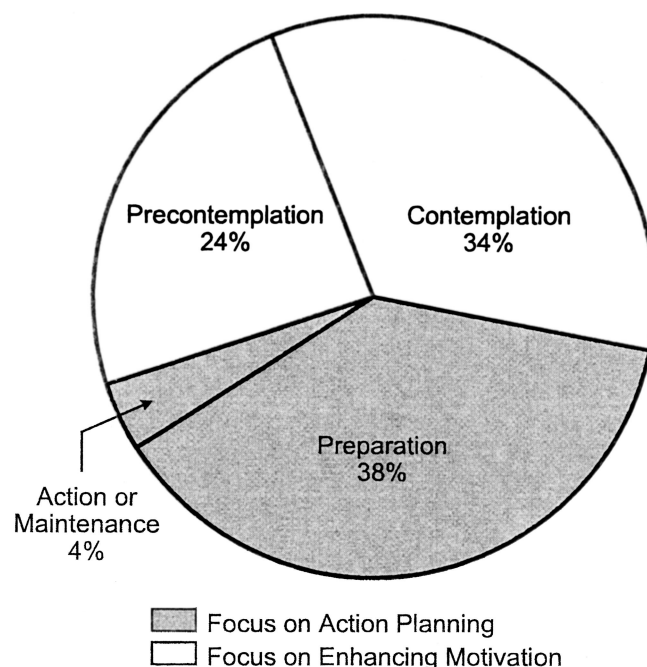
ders, diabetes self-management, or adherence to antihypertensive medication. A relapse is an obvious sign that something in the change plan needs an adjustment. Like the other stages of change, it requires the appropriate motivational counseling strategy⁹ to help patients capitalize on the lessons learned from relapse so they can eventually return to the *action* stage with an improved plan (see Table 2).¹⁰

ASSESSING READINESS TO CHANGE

How many trauma patients are truly in the later stages of change—*preparation, action, or maintenance*? Clinicians occasionally have difficulty assessing a patient's readiness to change—particularly in distinguishing between true *preparation* and *pseudo-preparation*. Studies measuring readiness to change in various medical populations have determined that only about 20% of all patients were in the later stages of change.¹¹ In contrast, 42% of 346 patients receiving brief interventions in a Level I trauma center were (Fig. 1)—a percentage over twice that found in other medical settings. Although adolescent substance users in other medical settings are notoriously reluctant to change, 51% of 254 injured adolescents sampled in an emergency department in Providence, RI, were found to be in the later stages of change.¹²

Were these trauma patients truly preparing for lasting change, or had their recent injuries merely provoked a transient swearing-off response? Two studies of hospital-

ized trauma patients have determined that trauma patients reduce their drinking for up to six months—even without



Source: From a 2003 convenience sample of 346 patients admitted to Harborview Medical Center, Seattle, Washington (a level 1 trauma center).

Fig. 1. Sequence of clinical tasks for the inpatient intervention protocol.

a brief intervention.^{13,14} However, brief interventions can prolong this reduction and reduce injury recurrence for as much as three years.¹² So, it is best to regard most trauma patients who say they are ready to change, as truly being ready. The exceptions to this rule are those patients already mentioned, who do not formulate a plan to change their behavior—a central task in the *preparation* stage. These patients are actually in *contemplation*; they need more time to reflect on the *why* of change, not the *how*.

CASE STUDIES ACROSS THREE STAGES

The following three case studies are of trauma patients in the *precontemplation*, *contemplation*, and *preparation* stages. Each describes the patient's unique view of personal substance use and the stage-matched clinical tasks for the brief interventionist. The identities and circumstances of these patients have been changed to protect their privacy.

Case Study 1: Precontemplation

Patients in the precontemplation stage have no intention of changing their behavior in the immediate future. Most do not perceive a link between their alcohol consumption and negative experiences. Acknowledgment of the link comes only when they progress into the later stages of change. To advance to the *contemplation* stage, they must begin to think differently.

Jason, a 19-year-old college student was admitted to the trauma center for blunt trauma sustained from falling off a balcony railing during a fraternity party. During the intervention, he stated defensively that he only drinks on weekends, can quit anytime he wants, and believes that popular concerns about college binge drinking are overstated. He resisted action-oriented advice to quit drinking or to adopt low-risk drinking guidelines by becoming argumentative or by changing the topic of discussion. *Why should he accept advice that he perceives to be an unnecessary solution to a problem he believes he does not have?*

To progress into *contemplation*, Jason had to begin thinking of his drinking not merely as a pleasurable activity, but also as a source of some of his problems. This introduced doubt about the appropriateness of his behavior and he became concerned about his safety in future situations. A key clinical task in the brief intervention for Jason was to inform him of his blood alcohol concentration (BAC) upon admission (190 mg/dL) and to suggest that had he been sober, he might have chosen not to sit on the balcony railing. The interventionist also helped Jason explore other times when he had been injured as a result of drinking. This planted doubt in Jason's mind about his drinking pattern. When an intervention is performed with respect and compassion, patients like Jason will begin to view heavy drinking as a source of pain and suffering, rather than as a source of pleasure. Although patients may not quit drinking immediately, this shift in thinking is a

successful outcome for a brief intervention with a precontemplator.

Case Study 2: Contemplation

Patients in the *contemplation* stage often find themselves in an uncomfortable state. They feel a need to consider change, but at the same time resist taking action. Because contemplators already accept that they incur harm from their substance use, they worry about their future. Although they complain about their problems, they do not take action. Some contemplators may have relapsed.

Janelle is a 38-year-old woman who sustained multiple injuries from a one-car crash while driving intoxicated—upon admission, her BAC was 230 mg/dL. Because she was intubated at the scene, she was not charged with drunk driving. In the trauma center, she was remorseful about her drinking and grateful for not having hurt anyone else. In another incident six years before, she had been charged with drunk driving. At that time, to avoid losing her driver's license, she had complied with mandated substance-abuse treatment and was in the *precontemplation* stage of change. When her treatment ended, however, she returned to drinking. Unlike Jason, she needed no help from the interventionist to recognize the link between drinking and suffering. She acknowledged that her injury was a direct result of her drinking, but was torn between wanting to quit drinking in the face of her recent disaster and questioning whether it was really necessary to give up drinking altogether. *Couldn't she achieve her goals by just cutting down?* Janelle did not make a personal commitment to change, and because she was not charged with drunk driving in this instance, she was not faced with mandated treatment, which would demand complete abstinence.

As with Jason, attempts to persuade Janelle to choose abstinence as a goal would only have exacerbated her resistance. To progress into *preparation*, Janelle needed help in tipping her perceived balance of pros and cons in favor of change, in setting an achievable drinking goal (to cut down or quit), and in formulating a plan to achieve her goal. The interventionist helped Janelle to explore her perceptions about her drinking behavior and asked her about her concerns for the future if she chose not to change. To elicit Janelle's input on potential drinking goals, the interventionist asked a hypothetical question: *"If you were to decide to make a change in your drinking, do you think you'd prefer to quit completely, or do you want to try cutting down to some personal limit and try to stay under that limit?"* This strategy increased Janelle's discomfort with the status quo (still drinking) and made change options seem more attractive and obtainable. Although a successful brief intervention with contemplators might not result in immediate change, it will bring patients closer to change because doubt about the status quo has been planted in their minds.

Case Study 3: Preparation

Patients in the *preparation* stage already know why they want to change and are ready to formulate a plan. They must choose between cutting down and quitting. Planning *how* to change means choosing the appropriate actions to reach a specific goal.

Brian was a 46-year-old, self-employed consultant who had sustained lower extremity and rib fractures. He had driven his car into a parked car one night during a downpour on a poorly lit street. Brian's BAC was 165 mg/dL upon admission to the trauma center; also, his urine toxicology screen was positive for marijuana and cocaine. On the night of the crash, he had been at an annual business party and was too embarrassed to call a cab to get home. He remembered consenting to a blood toxicology test requested by the police. At the trauma center, he reported drinking several days per week, but seldom as heavily as on the night he was injured. Brian further stated that he smoked marijuana weekly and used cocaine periodically. In addition to drinking at the party, he had also used cocaine. During his brief intervention on the orthopedic ward, he revealed that he had experienced several "near misses," but had never been charged with drunk driving until now. He acknowledged that his drinking was frequently an issue in arguments with his fiancée, that he spent too much money on alcohol, and that he would like himself better if he could change his behavior. Even before the crash, Brian had seriously considered getting help for his drinking and had already decided to change his lifestyle before the interventionist entered the treatment room.

To progress into *action*, Brian had to first choose a specific goal, formulate an action plan, and execute his plan. The key clinical task in this brief intervention was to help Brian clarify his goals and to help him formulate an achievable action plan. While exploring Brian's goals, the interventionist learned that before the crash, Brian had wanted to quit drinking, but wanted to keep using marijuana. The interventionist helped him explore how the future might unfold if he were to continue using an illegal substance, given his current legal problems. Brian decided to choose abstinence from all substances as his personal goal. Faced with a drunk-driving charge and mandatory treatment to retain his driver's license, Brian knew it could take months before the court would take action. He faced the choice of going into treatment immediately or waiting for the court to send him to treatment months later. After the interventionist outlined the anticipated recovery period, Brian decided it would be easier to participate in outpatient treatment during the recovery process, rather than to begin treatment after he had returned to a busy work schedule. He also knew that the court might look upon him more favorably if he were already sober and enrolled in a treatment program when his case came up.

SUMMARY

The *action* and *maintenance* stages are seldom encountered in trauma centers because brief interventionists usually screen for *active* alcohol or drug problems. By definition, the *action* and *maintenance* stages comprise people who have already quit drinking (or who have cut down greatly). Interventionists should offer praise and support to these patients to lessen their chances of relapse. As mentioned earlier, relapse is as common to the change process as are the stages themselves. Fortunately, most people who relapse return to the *contemplation*, *preparation*, or *action* stages—not to the *precontemplation* stage.¹ This is encouraging because it suggests that not all progress is lost when patients relapse.

Efforts—however well-intentioned—to persuade patients who are in the early stages of change to take immediate action only put patients on the defensive and cause negative reactions. Patients may "misplace" telephone numbers or "forget" treatment appointments, or even revert to denying the problem exists. This gross mismatch of counseling strategy with low readiness is counterproductive. For years, clinicians have known this. But until the arrival of the Stages of Change model, they were unhappily forced into an all-or-nothing posture with their patients—either trying to force their unready patients into treatment or avoiding the topic altogether. The model now reminds clinicians that to move as quickly as possible toward healthy behavior change with less-ready patients, they must first slow down and help them explore the *why* of changing before counseling them on the *how*.

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Changing the Battle Plan

Herbert D. Kleber, MD

Key Words: Illegal drugs, Legalization, Prevention, Treatment.

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Although there may be other innovative approaches to fighting the “War on Drugs,” legalization is neither the solution nor the most reasonable approach. As with other social wars we have waged—alcohol, poverty, racism, school desegregation, women’s voting rights, and cancer—the issues prompting calls for change in public policy involving illicit drug use have evolved over a long period of time. By the time we realized the scope of the problem, illicit drugs had already become entrenched in our society. We need to learn from history and proactively formulate plans for addressing this social problem.

Within these conference proceedings are articles by authors who advocate legalization and decriminalization as plausible plans for dealing with the public health menace of illicit drugs. One article describes in graphic detail the severe disease of cocaine and heroin use found in trauma centers. Although these trauma center cases are horrendous, it would be counterproductive to advocate legalization on the basis of emotional pleas for change; more likely, these horror stories would only get worse. A second article describes the history of drug and alcohol use in our country and strongly suggests that illicit drugs should be made legal, similar to the alcohol model. Because much of the disease and carnage treated in hospitals is related to alcohol use, the preference for this model seems dubious. It takes many battles on many fronts to win a war—have these authors fully considered the medical, public health, and criminal implications such a radical change would evoke? Can their plans be effectively coordinated? Or

would legalization and decriminalization spawn even more problems? As H. L. Mencken noted in 1920, “There is always a well-known solution to every human problem—neat, plausible, and *wrong*.”

This editorial does not take issue with the clinical findings these authors cite, but strongly disagrees with the proposed policy solutions they offer. Furthermore, it calls attention to several key issues glaringly omitted from their articles. The authors make an error common to many advocacy articles by citing only those references that support their positions, and by failing to discuss the volume of literature that counters their viewpoints. The fact that alcohol and tobacco, both accepted and legal drugs, are also among the most widely abused demonstrates that substance-use behavior is influenced by accessibility, affordability, and acceptability. Changing the legal status of users and addicts raises important questions: Will legalization decrease addiction? Will it reduce crime or improve public health? Will legalization improve prevention and treatment efforts? Will legalization lower economic, social, and health care costs related to drug use and abuse—or will it have the opposite effect?

WILL LEGALIZATION INCREASE OR DECREASE ADDICTION?

Proponents of legalization claim there would not be a significant increase of drug-dependent persons. If they are wrong, as I contend, and the number of users and addicts—particularly among adolescents—increases significantly, any proposed benefits of legalization will evaporate.

Legalization Would Increase Accessibility

It is fair to say that although the authors acknowledge the possible downsides to legalization—increased experimentation and dependency—they present only arguments to the contrary. Increased accessibility would increase experimentation and casual use leading to dependency (e.g., the rates of alcohol and tobacco use among adolescents substantially exceed that of illicit drug use).¹ Casual drug use among adolescents is a real danger; young people are much more likely to experiment with drugs than are adults, and the experience produces more pronounced brain effects that can be permanent. Plus, impulses toward novelty develop far more quickly in adolescents than does the mechanism to inhibit urges. Drugs like cocaine affect the frontal cortex, which is respon-

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From the Division of Substance Abuse, Columbia University College of Physicians and Surgeons, New York, New York.

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Address for reprints: Herbert D. Kleber, MD, Division of Substance Abuse, Columbia University College of Physicians and Surgeons, 1051 Riverside Drive, Unit 66, New York, NY 10032; email: hdk3@columbia.edu.

sible for controlling behavior and helping to put the brakes on impulses like unprotected sex. “Direct pharmacological-motivational effects of addictive drugs on dopamine systems may be accelerated during these developmental epochs, enhancing the progression or permanency of neural changes underlying addiction.”² A greater understanding of this mechanism may increase our understanding of why drug dependence is, so often, a chronic relapsing disorder.

Current prevention and treatment programs cannot effectively counter the increased number of users and problems that would result from legalization and greater accessibility. Some proponents for legalization argue that because young people are going to experiment with drugs anyway, we should promote “safe” drug use. But this argument fails to address the possible long-term consequences of even casual drug use in young people—permanent brain changes, future drug dependency, and behavioral consequences such as motor vehicle crashes and unprotected sex.

Legalization Would Make Drugs More Affordable

Unless the general laws of economic supply and demand are repealed, if illicit drugs become legal, the cost will decrease and consumption will increase, thereby increasing addiction. For example, cocaine now sells for \$60 to \$200 per gram, but it would retail at less than \$10 per gram if it could be produced and distributed legally. This would set the street price at less than 50 cents per dose—well within the reach of virtually every young person in America. If taxes were increased to keep the price high, an illegal black market would remain. Furthermore, as is the case with existing taxes on alcohol, tobacco, or gambling, tax revenues from drugs would not likely go to treatment.

Ironically, the fastest growing drug problem among the general population has been the prescription opioid analgesics. Would the authors advocate making OxyContin and Dilaudid readily available and therefore more affordable without prescription? It would be ironic—and tragic—if heroin addicts could legally obtain cheap heroin to support their habit while terminally ill cancer patients incur great expense to obtain prescriptions for essential pain medication.

Legalization Would Make Drugs More Acceptable

Laws express the will of the people by defining acceptable societal conduct. Drug laws not only reflect prevailing attitudes and create criminal sanctions but also educate the public and shape attitudes. Reducing addiction would be decidedly more challenging if society passed laws that indicated these substances were not sufficiently harmful to prohibit their use. For example, when Prohibition was repealed, society became more accepting of alcohol use. The authors point out that crime, corruption, and violence associated with the alcohol trade during Prohibition diminished after it ended, but they fail to emphasize that alcohol addiction also increased. During Prohibition, the amount of alcohol consumed declined, as did the incidence of alcohol-related medical

problems and violence. Furthermore, although it is true that arrests for alcohol trafficking decreased after the repeal of Prohibition, the number of alcohol-related arrests attributable to behavior resulting from intoxication nearly doubled.³ Prohibition was repealed because of broad public support for legal access to alcohol. The “freedom” to drink alcohol was perceived as more important than the individual and public health “consequences” caused by alcohol use. Similarly, legalization of illicit drugs would send a signal that protecting the public health should be secondary to the freedom to use these substances. If only 15% of the population began using drugs after legalization, the current level of drug use (7%) would more than double.

WOULD LEGALIZATION DECREASE DRUG-RELATED CRIME?

Yes it would, to a degree, but only with respect to the buying, selling, and use of illicit drugs, each of which is presently a crime. Crimes associated with the physical and mental effects secondary to drug use and addiction would increase. Most street users are already well established in their criminal careers before the onset of either narcotic or cocaine use. They commit crimes not only to support their habits but also to pay for basic daily living expenses such as food, clothing, and shelter. If the price of legalized drugs is kept low in an effort to diminish crime, widespread use will escalate quickly; if kept high by means of taxes to provide funds for treatment and prevention, an illegal market would persist both for hard-core addicts and for those who want to begin experimenting with drugs. In a 1970s study conducted in England, two thirds of those who received heroin by prescription continued to commit crimes; many either sold heroin or bought more heroin on the black market to feed their habit.⁴

The argument that legalizing drugs will diminish crime is simply not well founded. To the contrary, legalization will reduce the price of illicit drugs and will increase accessibility, leading to increased casual use and the greater likelihood of addiction. Remember when crack was readily available at \$3 per rock? Crack addicts committed crimes other than using, buying, or selling the drug. It is estimated that if cocaine were as available as alcohol, the number of cocaine addicts would rise sharply—perhaps 3 to 10 times the current number of approximately 2.8 million.⁵ Because cocaine use is associated with paranoia, psychosis, and violence, the legalization of this drug would only increase crime and the resultant injuries and deaths associated with its use. Let’s not tear down our current legal system but make it more effective by concurrently expanding and improving treatment and prevention programs.

WILL LEGALIZATION IMPROVE PREVENTION AND TREATMENT EFFORTS?

No. As noted earlier, laws both reflect and shape public perception of what is acceptable behavior. Legalization sug-

gests that illicit drugs are not harmful, making both prevention and treatment more difficult. Increased resources can be dedicated to prevention and treatment programs without changing the legal status of illicit drugs.

Proponents contend that legalization would free up monies from law enforcement for redistribution to treatment and prevention programs. This is essentially saying, “Let’s make drugs legal so that we can have additional funds to treat the public health problems they cause.” The drug problem in this country is already an epidemic. Creating more drug addicts is not the answer. There is no evidence that demand-reduction efforts—prevention and treatment—are adequately successful to stem the increased drug use in a legalized environment. Millions still engage in risky sexual behavior, and ironically, improved treatment for acquired immunodeficiency syndrome has apparently led many to give up safe sex practices. Fifty million Americans still smoke cigarettes on a regular basis despite heavy antismoking campaigns and a variety of treatment methods.

WOULD LEGALIZATION DECREASE LAW ENFORCEMENT COSTS OR THE BURDEN ON OUR PRISONS?

Advocates for legalization point to the exploding prison population, generated in large part by stricter laws, tougher enforcement, and mandatory minimum sentencing. However, recidivism also contributes to the prison population. Rather than make hard drugs readily available and affordable, we need more treatment programs in prison, after prison, and instead of prison to address recidivism. Although strict law enforcement does not necessarily deter addicts from using drugs, the criminal justice system can play a major role by diverting nonviolent offenders into treatment through drug courts, which have been shown to increase the number of individuals likely to complete treatment. Mandatory treatment with close supervision and credible sanctions is about as effective as voluntary treatment. However, legalization will decrease the number of people referred for mandatory treatment.

It is true that legalization would initially decrease law enforcement costs and our prison population, but these costs would quickly rise again as criminal activity increases because of the psychological and physical effects of drug use. An increase in drug-related injuries and fatalities associated with motor vehicle crashes, domestic violence, and crime in general would inevitably show up in our trauma centers. So, over time, it is doubtful that legalization would produce any cost savings in law enforcement. Furthermore, it is unrealistic to expect that taxes imposed on newly legalized drugs would be sufficient to cover the additional law enforcement costs generated by increased use and resultant drug-related crimes.

WOULD LEGALIZATION REDUCE HEALTH CARE COSTS?

Today, advocates of legalization claim that taxes on the legal sale of drugs would dramatically increase revenues and even help erase the federal deficit. Years ago, opponents of alcohol prohibition made similar claims, but the reality has been quite different. In 1995, although state and federal alcohol taxes generated more than \$11 billion in revenues,⁶ this tax revenue paid for less than half the \$40 billion health care burden imposed by alcohol abuse.⁷ Similarly, health care costs directly attributable to illegal drugs already are approximately \$15 billion,⁸ an amount that would increase significantly with legalization. When illicit drugs become readily accessible, cheaper, and viewed as more acceptable because they are legal, use will increase along with drug-related injuries and the resultant health care costs.

CONCLUSION

It is commonplace for those who oppose current U.S. policy on drug use and abuse to argue, “The war on drugs is lost.” The battlefield analogy is an unfortunate one. It is true that this war should be fought on a number of fronts; however, legalization is not an appropriate front. To write off the additional millions of addicts that would be created by legalization is a policy of despair. Rather than tearing down the current legal system, legal sanctions should be paired with treatment programs. I do agree with the authors that treatment and prevention must be priorities—but these programs cannot replace criminal sanctions. There are a variety of innovative programs that can be implemented: eliminating mandatory minimum sentences for certain drug-related offenses; expanding drug courts as well as post-prison treatment; expanding the recently created Parents Corps; creating incentives for large pharmaceutical companies to focus on developing medications, especially for cocaine treatment; and expanding buprenorphine programs to reach more of the 75% of heroin addicts not in treatment—a far better alternative than heroin maintenance.

Currently, 65% of federal expenditure for drug control goes toward reducing supply; 35% is allocated to programs that focus on reducing demand.⁸ Keeping currently illicit drugs illegal does not mean we have to be bound by the same proportion of expenditures. A 50/50 split could realistically improve our chances of “containing” the drug problems in this country.

WHAT ABOUT MARIJUANA?

Ironically, most legalization or decriminalization activity focuses on marijuana and not on heroin and cocaine, even though these drugs are the ones most often associated with crime and health problems. Given the focus on trauma, this discussion has mainly argued against legalization of drugs such as cocaine and heroin.

Although less dangerous than heroin or cocaine, marijuana is hardly innocuous.⁹ It can produce physical dependence and addiction in approximately 1 of 11 people who try it, compared

with 1 of 3 who try smoking tobacco, 1 of 4 who try heroin, 1 of 5 who try cocaine, and 1 of 6 who try alcohol.¹⁰ Increased availability tends to correlate with increased experimentation and use. As use rises, the number of dependent users with drug-associated problems rises as well. If more Americans use marijuana, we will be left with substantially more persons in trouble with the drug. Finally, the increased vulnerability of adolescents and the potential for permanent brain changes caused by addiction may increase recidivism. Therefore, decriminalization of marijuana has its own unique drawbacks. Treatment for problems associated with marijuana use has become a common reason for seeking substance-abuse treatment, with almost 1 million individuals seeking such treatment in 2002.¹⁰ Even though marijuana toxicity is lower than that of opioids or cocaine, altering its legal status would not decrease the number of persons presenting to emergency rooms with problems associated with its use. Smoking marijuana increases lung cancer risk. Use of marijuana has been linked to impaired driving, impaired short-term memory, and decreased energy, a trait especially problematic for adolescents. Incarceration for individuals who possess only small amounts of marijuana is not likely to occur, but when it does occur, it is not a plausible solution either.

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Recommendations for Trauma Centers to Improve Screening, Brief Intervention, and Referral to Treatment for Substance Use Disorders

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In an effort to broaden research and to increase the role of brief interventions for alcohol and drug problems in trauma centers, investigators at the Centers for Disease Control and Prevention collaborated with other agencies to convene a national conference from May 28 to 30, 2003, in Arlington, Virginia. Participants included clinicians and researchers from emergency medicine and trauma surgery, psychiatrists, psychologists, alcohol researchers, epidemiologists, policy advocates, and representatives from various federal and state agencies involved in alcohol-related research and substance treatment efforts. Intensive interaction between presenters and participants occurred during each session. On the final day of the conference, participants were given draft recommendations for review and discussion. Final recommendations incorporate feedback from this discussion and were approved by the conference steering committee. For the convenience of the reader, these recommendations summarize the conference results.

The recommendations will be more useful if readers use a common definition of screening, brief intervention, and referral to treatment (SBIRT). Screening is different from case finding. In case finding, a clinician evaluates patients who appear to have a medical or psychological condition to arrive at a diagnosis. The goal is diagnosis and the target is the individual patient. In screening, program staff use a screening instrument with every member of a predefined group of patients to identify and measure risk factors for a

condition. Screen-positive patients receive an intervention to decrease that risk. Depending on the condition and risk factors of interest, screen-positive status may or may not lead to a diagnostic evaluation. The goal is quantifying risk and the target is a predefined group.

The prevailing practice in most medical clinics is to address patients with obvious alcohol-related problems: case finding. However, case finding does not identify most patients with alcohol problems because the role of alcohol is not readily evident, or the screening instrument may not be appropriate for the condition of interest. For example, blood alcohol concentrations are appropriate to identify the degree to which patients are intoxicated; self-report questionnaires are appropriate to identify the level of usual alcohol consumption, alcohol-related harm, or symptoms of alcohol dependence.

The term “brief intervention” is defined many ways in the published literature and, historically, can include three or four separate counseling sessions. However, for the purposes of these recommendations, a brief intervention is defined as a postscreening interaction between a patient and staff during the medical visit or hospitalization and can last from 5 minutes to 20 minutes or more. Staff do not usually have advanced professional counseling credentials, but are specially trained to provide brief interventions. For a patient with less severe problems, the goal of the brief intervention is for the patient to decrease or stop drinking. For a patient who has problems severe enough to warrant more extensive treatment, the goal is to increase the patient’s motivation to seek more intensive treatment. The brief intervention may also include efforts to ensure patient access to appropriate specialized treatment.

Final conference recommendations are listed below. Immediately after the list is text that provides the background and rationale for each recommendation.

1. Disseminate evidence about intervention efficacy and effectiveness.
2. Make SBIRT for substance use disorders routine practice in trauma centers even as appropriate implementation studies are being conducted.
3. Fund implementation research that involves the trauma community.

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From the Centers for Disease Control and Prevention, Atlanta, Georgia.

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Address for reprints: Daniel Hungerford, DrPH, Centers for Disease Control and Prevention, 4770 Buford Highway NE, Atlanta, GA 30341; email: dyh5@cdc.gov.

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4. Make SBIRT for substance use disorders an essential component of trauma care.
5. Develop better systems of reporting substance use problems to improve surveillance.
6. Change insurance regulations.
7. Insurers should reimburse trauma center staff for SBIRT for substance use disorders.

Recommendation 1: Disseminate Evidence about Intervention Efficacy and Effectiveness

Expert and consensus panels have evaluated the body of evidence on the efficacy and effectiveness of SBIRT on substance use problems. There is clear evidence that much can be done to reduce substance use problems and their consequences. The American College of Surgeons Committee on Trauma (COT) should disseminate this evidence and the panel's recommendations throughout the field of trauma surgery.

Researchers who study the treatment of substance use disorders already know that brief interventions in health care settings can improve health outcomes for injured patients by reducing repeat injuries, emergency department and trauma center readmissions, subsequent alcohol use, health care costs, and other negative consequences. Although the Institute of Medicine (IOM), medical professional panels, and other authoritative groups have recommended that brief interventions be implemented in a variety of medical settings—including emergency departments and trauma centers—many physicians and nurses are unaware of these recommendations and the body of evidence supporting brief interventions, or are not convinced that these services actually help patients. Trauma staff cannot be expected to support these services unless they have been fully informed of the evidence.

The need to address substance use problems among trauma patients is great. Research studies have found that up to 50% of patients who present for treatment at trauma centers screened positive for alcohol or drugs. However, trauma centers cannot address the problem because these patients are not routinely identified. Fewer than one in seven hospitalized trauma patients have any medical record notation that they underwent blood alcohol testing or were administered an alcohol screening questionnaire.

This knowledge must be disseminated to individuals and groups who control funding and set policies governing routine practice—federal agencies and leaders of professional groups such as the American Association for the Surgery of Trauma, the Society of Trauma Nurses, the American Trauma Society (ATS) and its Committee on Trauma (COT), the American Hospital Association, the Joint Commission on Accreditation of Healthcare Organizations, and other organizations devoted to trauma care.

Dissemination can be accomplished by presentations that lead to continuing medical education credits, peer-reviewed articles in journals such as *The Journal of Trauma*, the *Journal of the American College of Surgeons*, *Annals of*

Emergency Medicine, the *Journal of Emergency Nursing*, and other publications read by health professionals and administrators working in trauma centers. Researchers of substance use disorders should be invited to partner with trauma specialists to produce presentations, training materials and sessions, and journal articles.

Recommendation 2: Make SBIRT for Substance Use Disorders Routine Practice in Trauma Centers Even as Appropriate Implementation Studies Are Being Conducted

To facilitate broad acceptance of SBIRT for trauma patients with substance use disorders, all trauma centers—academic and nonacademic—should focus on making protocols more efficient, helping trauma services overcome barriers, and developing flexible practice models. Randomized clinical trials in trauma centers and other medical settings consistently demonstrate that brief interventions can help such patients reduce alcohol intake and related consequences such as injury. However, demonstrated efficacy does not automatically lead to changes in routine practice. Despite the proven efficacy of brief interventions in diverse clinical settings, few studies have focused on methods to adapt treatment protocols or to optimize them for delivery in trauma centers. Such implementation research would encourage the adoption of brief interventions as part of routine trauma care.

Protocols developed for efficacy studies are generally too complicated for use in real-world clinical settings. Implementation studies are needed to evaluate protocols modified for use by non-research staff. The objectives of such studies are to improve the outcomes of brief interventions for trauma patients, decrease implementation cost, and develop protocols that are effective in varied trauma centers settings—urban and rural, academic and nonacademic, or county and private hospitals. Protocols that accommodate variations in operational realities and patient populations are more likely to be accepted by trauma center staff, and patients, and be adopted as part of routine trauma care.

Implementation studies also can pave the way for widespread use of new practices by developing and evaluating training tools, start-up manuals, practice guidelines, and performance metrics for measuring and maintaining quality services. For example, implementation studies can identify protocol components that improve patient outcomes, increase efficiency of screening and intervention programs in trauma centers, and reduce injury recidivism. This knowledge will allow trauma centers to make protocols more efficient and to tailor them to a specific center's needs.

In short, implementation studies are essential if SBIRT is to become part of routine trauma care. It would be a fundamental misunderstanding of the concept of implementation research if trauma centers delayed implementation of SBIRT until after such research is completed. Instead, implementation studies should help evaluate, improve, and adapt SBIRT at the same time it is being implemented as routine practice.

Recommendation 3: Fund Implementation Research that Involves the Trauma Community

Federal agencies and private foundations should fund research in trauma centers to find more effective ways to implement screening, brief interventions, and referral to specialized alcohol and drug treatment. To ensure that the resulting research products are feasible, effective, and likely to be adopted by trauma centers, research projects should include members of the trauma community on teams that design and conduct implementation studies.

Federal agencies and other funding groups have not supported brief alcohol interventions in trauma centers with the same level of funding as that provided in primary care settings. Trauma surgeons either have had difficulty competing for available funding or they are unaware that such funding exists. Nonetheless, trauma centers provide a particularly promising setting for brief alcohol interventions. Every year, these centers admit more than 3.5 million seriously injured patients. Compared with primary care patients, trauma center patients have a much higher prevalence of alcohol and drug problems, and they are particularly receptive to interventions. Furthermore, the types of patients typically seen in trauma centers are generally not likely to visit primary care practitioners. Consequently, admission to a trauma center may offer the only opportunity to provide interventions for these patients.

Compared with practices in other medical settings such as primary care clinics, trauma care tends to be more uniform because the services offered in trauma centers must be in accordance with standards provided by the COT in *Resources for Optimal Care of the Injured Patient*. This document describes all practices and components that the COT considers essential for trauma centers to achieve or maintain trauma center status. As a result, integrating new services and protocols into routine trauma care throughout the country is much easier than integrating new practices in other medical settings. Furthermore, to maintain trauma center status, hospitals must maintain a trauma registry that contains data on every patient. This provides each trauma center with a repository of information for research and quality improvement projects. The registry also provides the COT with a structure for quality assurance and for monitoring institutional compliance with COT care standards.

Despite the compelling reasons for providing SBIRT programs to injured patients, most studies have been conducted in primary care clinics and did not result in intervention protocols suitable for use in trauma centers. Trauma centers have different types of patients and different operational demands; therefore, different protocols are required. Because emergency departments and trauma centers are particularly busy, complicated clinical settings, flexible protocols must be tailored to the varying operational requirements of different institutions.

Furthermore, most grants on brief intervention in medical settings are awarded to researchers who specialize in alcohol treatment research. These researchers have primarily focused on demonstrating treatment efficacy, comparing the relative efficacy of different types of treatments, and on identifying the effects of various elements of the treatment process. Many of the intervention studies were lengthy and involved multiple sessions. Consequently, few studies produced protocols suitable for trauma centers.

To conduct implementation studies that will support screening and brief intervention for routine use in trauma centers, a different mix of investigators will be required. Substance use treatment professionals are a necessary part of that mix, but just as necessary are trauma surgeons and emergency physicians, nurses, social workers, hospital administrators, health services researchers, health economists, legal experts, and professional organizations such as the COT. These stakeholders are in the best position to help develop and evaluate the utility and practicality of proposed implementation studies and resulting practice models.

Currently, the study sections that decide which proposals will be funded are usually composed of people who have little or no experience with trauma centers. Likewise, they are not familiar with implementation study goals or methods. Therefore, selection processes should encourage interdisciplinary collaborations between basic and clinical investigators involved in trauma care. To facilitate such collaborative efforts, federal and private agencies should target funding for implementation research projects in trauma centers, include trauma surgeons and emergency physicians who have conducted this type of research in study sections, and solicit proposals that foster interdisciplinary collaboration.

Recommendation 4: Make SBIRT for Substance Use Disorders an Essential Component of Trauma Care

The COT's 'Resources for Optimal Care of the Injured Patient' should adopt language stating that SBIRT is an essential component of care in Level I and Level II trauma centers.

By offering preventive intervention services, trauma centers position themselves to participate in a larger public health strategy. In its *Guide to Clinical Preventive Services*, the U.S. Preventive Services Task Force notes "the majority of deaths among Americans below age 65 are preventable, many through interventions best provided in a clinician's office." Although this document was intended for use in primary care settings, it also applies to specialists. For example, cardiologists offer blood pressure management, and pulmonologists offer smoking cessation programs. Not only do these specialists treat specific diseases, they also help to prevent those diseases by managing underlying risk factors.

The COT already requires Level I and Level II trauma centers to be engaged in injury prevention activities. Because alcohol and drug use are the principal risk factors leading to

serious injury, identifying patients with these risk factors and providing interventions should be an essential part of a trauma center's mission.

By requiring SBIRT as a routine component of care, trauma centers can address the most prevalent risk factors for trauma patients and thereby reduce injuries and other consequences related to substance use. This service will enhance the trauma center's value to the community because its expanded mission will share common elements with the goals of organizations such as Mothers Against Drunk Driving (MADD), the American Society for Addiction Medicine, law enforcement agencies, and the recovery community. These links not only communicate the importance of trauma centers to local and regional communities, but also garner support for their existence and funding from outside the medical community.

Substance use problems consume a large proportion of trauma resources. The trauma community's response should be commensurate with the magnitude of the problem. Although providing SBIRT services is not the primary mission of trauma centers, requirements should be defined so that trauma centers can provide effective services without being overburdened.

Screening and brief intervention programs often focus on patients with mild to moderate alcohol problems. However, these programs should also include referrals to more extensive alcohol treatment for patients whose screening results indicate more severe problems such as alcohol dependence. The COT should consider these factors in the language of its requirement.

Recommendation 5: Develop Better Systems of Reporting Substance Use Problems to Improve Surveillance

Although many trauma patients experience alcohol and drug problems, population-based surveillance data about these problems are not available. Therefore, reporting substance use problems to public health or other appropriate authorities should be mandatory. The COT and the American College of Emergency Physicians should request that appropriate federal agencies form an advisory panel representing affected stakeholders to explore ways to improve surveillance estimates.

In addition to the value of blood alcohol concentration testing in clinical management, routine testing can bolster important public health objectives. Data obtained by testing has a number of uses: to facilitate screening and brief interventions and entry into treatment; to design programs to prevent alcohol- and drug-related medical problems and trauma; to monitor emerging trends in alcohol and drug use; to provide policy makers and governmental agencies with more accurate and representative information about the magnitude of substance use problems in specific communities; to document the need to address substance use problems, which can

facilitate funding decisions; and to evaluate the effectiveness of impaired driving prevention efforts.

Current estimates of the prevalence of substance use problems among trauma patients are inadequate. Most published estimates come from single-institution studies and therefore cannot be generalized to the total U.S. population of trauma patients. Studies based on multiple institutions may not be valid or reliable because methods of identifying substance use problems are not uniform across practitioners and institutions. Another problem with current estimates is that biochemical tests or self-report screening instruments are not routinely ordered for all or even for a statistically valid sample of patients. Therefore, the patients tested likely represent a biased sample because trauma staff test only patients they suspect are intoxicated or have alcohol problems.

Estimates based on national databases are also problematic. The Substance Abuse and Mental Health Services Administration's Drug Abuse Warning Network (DAWN) collects data on drug-related visits to a representative sample of U.S. emergency departments. However, it only captures data when the drug-related visit is the primary or secondary diagnosis and only records alcohol-related visits when the visit is also drug related. The American College of Surgeons' National Trauma Data Bank (NTDB) is also inadequate as a surveillance system for substance use problems—as of 2002, approximately two thirds of trauma centers were not participating, and the majority of patient entries into the database (64%) did not include a blood alcohol concentration measurement. Generally, testing is infrequent and usually performed only when the physician believes the patient is under the influence of one or more intoxicants. Studies have shown that the use of clinical suspicion to detect the presence of alcohol intoxication in trauma patients is inaccurate, especially in patients who are brain injured or in shock, and results in underreporting. Moreover, because the NTDB alcohol variable reports only the presence or absence of alcohol—not the level of blood alcohol—it is not possible to evaluate a trauma patient's level of intoxication.

A mandatory reporting system that is both feasible and capable of producing valid estimates would require careful planning and support from a variety of stakeholders. To develop a pilot program, critical questions must first be addressed. What are the primary goals of the system? Are they to estimate the prevalence and trends of substance use conditions among trauma patients; to facilitate further substance use treatment; to support legal or administrative action? To whom should the data be reported? The answers to these questions will help determine what data will be collected. Arriving at valid and feasible answers will require an ongoing process that involves all affected stakeholders. The process would have two main goals: to evaluate whether existing data collection systems can be modified to achieve surveillance goals and to design a system—new or modified—that can balance competing interests, operational realities, and surveillance goals. We have described the need and the potential

goals and benefits of such a system. Rather than recommend a specific process, we recommend that the Committee on Trauma and the American College of Emergency Physicians initiate the process.

Recommendation 6: Change Insurance Regulations

Statutes in most states allow medical insurance policies to exclude coverage for treatment if a patient's injuries are alcohol or drug related. This exclusion poses a major barrier to routine blood alcohol testing and screening of trauma patients for substance use disorders. It also stigmatizes patients and impedes best management practices of a treatable disease. State laws should be changed to prohibit insurance companies from denying payment for treatment of patients based on documented use of alcohol or drugs. Trauma centers, surgeons, and hospital administrators should use their influence to call for changes in legislation in their states.

In 1947, the National Association of Insurance Commissioners (NAIC) created a model law called the Uniform Accident and Sickness Policy Provision Law (UPPL). The relevant part of that law reads: "The insurer shall not be liable for any loss sustained or contracted in consequence of the insured's being intoxicated or under the influence of any narcotic unless administered on the advice of a physician."

The NAIC's intent was to promote uniform insurance legislation throughout the country by creating a model law on which states could base their own insurance legislation. Most states adopted the model. Consequently, insurance companies in these states can deny payment for medical services provided to patients with alcohol- or drug-related injuries. The statutes neither specify a level of intoxication nor require proof of a causal link. Prevailing societal attitudes may have led to widespread adoption of these laws as a morals clause, as a method to reduce drunk driving by increasing the associated financial risks, or as a means of reducing insurance costs.

Some states did not adopt the 1947 UPPL model and have no statutory law addressing insurance payment for alcohol- or drug-related injuries. In these states, courts have ruled that insurers can write such clauses into their policies. For example, consider a Connecticut court case. In September 2003, an underage intoxicated driver was involved in a motor vehicle crash and was taken to a Level I trauma center for treatment, generating a \$245,235 medical bill. The insurance company's refusal to pay this medical claim was upheld by the 2nd U.S. Court of Appeals. Court decisions such as this and prevailing UPPL laws have broad negative consequences for dealing with a major public health problem.

In trauma centers, the prevailing methods for identifying patients with alcohol and drug problems are testing blood for alcohol concentrations and urine for drug levels. These tests enhance diagnostic sensitivity, objectively validate self-reported alcohol or drug use, and can be implemented with minimal cost. However, if information on

alcohol or drug use becomes part of the patient's medical record, insurance companies can use this information as a basis for denying payment. Consequently, trauma surgeons have valid concerns regarding the potential financial impact of participation in screening and brief intervention programs.

When trauma surgeons do not adequately document substance use by patients involved in motor vehicle crashes, valuable impaired-driving data are lost. This not only hampers prosecutors' investigations of crashes, but also affects prevention efforts. Even in states with mandatory testing laws, alcohol use is tested in fewer than half of those drivers involved in crashes resulting in death, injury, or property damage. Insurance laws that threaten reimbursement to physicians and hospitals may contribute to this low testing rate. Changing those laws to prohibit exclusionary language would encourage routine blood alcohol concentration and urine toxicology testing.

Trauma surgeons sometimes need information about a patient's alcohol and drug use for optimal clinical management. They may need it to determine the cause of an altered mental status, detect patients at risk for withdrawal symptoms, ensure that patients are competent to provide consent for medical procedures, or determine the reliability of physical symptoms such as abdominal or spinal column pain. Consequently, trauma surgeons are on the horns of a dilemma: test for substance use and risk financial repercussions or avoid testing and proceed with treatment without potentially important information. The net result is that the insurance practice of denying payment in these cases penalizes both patients and trauma centers. In addition, it hinders widespread adoption of screening and brief intervention programs in trauma centers.

In June 2001, after a year of meetings, NAIC members decided unanimously to amend the 1947 UPPL model law. The amendment recommends that states write laws prohibiting medical expense policies from excluding coverage for treatment of alcohol- and drug-related injuries. Furthermore, a medical expense policy was defined as "...an accident and sickness insurance policy that provides hospital, medical, and surgical expense coverage. . . ."

States are not required to adopt the amendment. However, the National Conference of Insurance Legislators (NCOIL) passed a resolution supporting this amendment and sent letters to insurance commissioners and key state legislators recommending its adoption. The endorsement by these two organizations has had an impact. As of April 2005, six states—Maryland, Iowa, North Carolina, South Dakota, Vermont, and Washington—either have repealed UPPL-related statutes or have passed new laws based on the current NAIC amendment. In addition, bills to repeal or change UPPL-related laws are being considered in four states—California, Nevada, Rhode Island, and Texas.

Recommendation 7: Insurers Should Reimburse Trauma Center Staff for SBIRT for Substance Use Disorders

Doctors, nurses, and other health care practitioners who work in trauma centers and are trained to address patients' alcohol and drug problems should be able to bill for their services and be reimbursed by health care payers. The COT and the ACEP should take the lead in developing billing codes and actuarial studies of SBIRT to foster changes in routine insurance practices.

Currently, insurers (the federal government, health maintenance organizations, and private health insurance companies) pay for treatment of injuries in trauma centers, but do not reimburse trauma surgeons or their surrogates for providing prevention interventions.

When more than 50% of the surgeon's time during a patient encounter is spent on "counseling and coordination of care," a time-based billing code that reimburses at a higher level can be used to cover the cost of the intervention. However, trauma surgeons, trauma nurses, and others cannot bill specifically for providing SBIRT services. Only psychologists, psychiatrists, alcohol treatment specialists, and other individuals with mental health specialty credentials can bill for this type of service.

In *Broadening the Base of Treatment for Alcohol Problems*, the IOM states that the responsibility to provide SBIRT does not rest solely on substance use treatment specialists. The IOM recommends expanding the responsibility for screening and counseling to physicians and other health care

specialists who work in medical settings where alcohol problems are frequently encountered (e.g., trauma centers). Consensus panels, professional organizations, and task forces have reiterated this recommendation. However if these services must be donated because healthcare organizations refuse to reimburse for them, the base of treatment is not likely to broaden significantly.

Some trauma centers may wish to hire mental health or addiction specialists specifically to provide SBIRT, but this may not be the optimal model for all centers. The establishment of billing and reimbursement procedures for SBIRT will facilitate its widespread adoption in trauma centers.

The lack of reimbursement for interventions by staff who are trained to provide SBIRT, but are not certified substance abuse treatment specialists, is also contrary to IOM recommendations in *Crossing the Quality Chasm: A New Health System for the 21st Century*. Those recommendations state that reimbursement should align with recommended practice patterns, evidence-based medicine, and optimal treatments. Because billing codes have not been developed to allow nonspecialists to bill for these services, current reimbursement practices provide no financial incentive for trauma surgeons and trauma centers to incorporate interventions into their daily practice. The COT, ACEP, and other clinical professional societies involved with trauma care should take the lead in developing billing codes and actuarial studies of SBIRT that would be positive incentives to change routine insurance practices.