



The graphic features a stylized logo of a bottle and glass. The text reads: "Ensuring Solutions to Alcohol Problems" in a serif font, with "THE GEORGE WASHINGTON UNIVERSITY MEDICAL CENTER" in a smaller sans-serif font below it. To the right, "Primer 1" is written in a large, bold, serif font. At the bottom, "EXECUTIVE SUMMARY" is written in a bold, sans-serif font on a dark red background.

## Treating Alcoholism as a Chronic Disease

Alcoholism is a diagnosable disease similar to other chronic, relapsing conditions such as asthma, diabetes and high blood pressure. All of these illnesses:

- Have strong genetic and behavioral components
- Can be identified with reliable diagnostic methods
- Can be effectively managed with behavior change and medication
- Show similar patterns of symptom control and relapse

Yet the nation continues to deal with alcoholism as a social problem more often than as a health issue, primarily because of the stigma, or social disapproval, that accompanies addiction to any drug. As a result, too few people get the treatment they need. This drives up alcohol-related health care costs, disrupts families, cuts productivity in the workplace and threatens the safety of our communities.

Recent advances in neuroscience have enabled researchers to uncover the biological roots of alcoholism and study how changes in brain chemistry can lead to addiction. These advances also have led to the development of new medications to treat alcoholism. This means that physicians can prescribe medication in addition to behavior change to manage alcoholism, just as they routinely do for asthma, diabetes and high blood pressure.

The strong case for treating alcoholism as a chronic disease builds on a great deal of evidence:

- Numerous points of comparison among alcohol-related problems, asthma, diabetes and high blood pressure;

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- Genetics and behavior increase the risk for developing alcoholism;
- Alcohol is a drug that affects people differently;
- The direct effect of alcohol on brain chemistry;
- New medications for treating alcoholism reduce craving for the drug;
- Treating alcoholism as an acute illness has negatively influenced perceptions about treatment; and
- Stigma has led to inequities in the health care system that make treatment for alcoholism less accessible than that for other chronic diseases.

The primer concludes with straightforward steps that employers, policy makers, health care professionals and individuals can take to ensure that alcoholism is treated as a chronic disease.

Treating Alcoholism as a Chronic Disease was developed in consultation with David Lewis, MD, founder of Brown University's Center on Alcohol and Addiction Studies. It is available on-line at <http://www.ensuringsolutions.org>.



*This is the first in a series of primers by Ensuring Solutions to Alcohol Problems at the George Washington University Medical Center and supported by a grant from The Pew Charitable Trusts. Future subjects will include understanding alcohol problems; the costs of problem drinking and alcoholism; treating alcoholism and employee assistance programs.*

## Treating Alcoholism as a Chronic Disease

Nearly 14 million Americans have serious problems because of their drinking including eight million men and women who suffer from alcoholism, a chronic disease. Alcoholism can be clinically diagnosed and people with the disease typically experience many additional alcohol-related medical complications. Research demonstrates that treatment can save lives, restore families, reduce health care costs, increase productivity in the workplace and make our communities safer.

Yet while most Americans believe that alcoholism is a disease, the nation continues to deal with it more often as a social problem than a health issue. One reason is stigma, the social disapproval that confronts people with addiction to any drug. Stigma discourages people who are dependent on alcohol from seeking medical attention and prevents the nation from accepting that alcoholism is a chronic, relapsing condition with many similarities to asthma, diabetes and high blood pressure.

Stigma also has led to inequities in the way the American health care system addresses alcoholism. Unlike people with other chronic illnesses, people with alcoholism who do seek medical treatment face insurance restrictions at both the public and private level.

Because alcoholism has not been addressed as a health issue, 75% of people with serious drinking problems never receive any treatment.

## **Alcoholism is a chronic disease with many similarities to asthma, diabetes and high blood pressure.**

Simply defined, a chronic disease is one that continues over a long time, progresses consistently or intermittently, and often can be managed. The causes of chronic disease can be complex and include hereditary factors. A patient may not experience many symptoms until the disease has advanced. A chronic disease doesn't always follow a predictable course. Some patients may relapse more frequently than others. Treatment may require that patients change their behavior.

In each of these respects, alcoholism strongly resembles such chronic diseases as asthma, diabetes and high blood pressure among adults.

Although a single gene or set of genes has not been found that causes alcoholism, the risk for developing alcoholism is estimated to be 50 to 60 percent genetic. The genetic risks for developing asthma, diabetes and high blood pressure are comparable. As with many other complex illnesses in which family history is a factor, there appear to be a number of genetically controlled characteristics that make some individuals more vulnerable to becoming dependent on alcohol.

People who know they are at genetic risk for asthma, diabetes and high blood pressure can control certain risk factors. Similarly, individuals with family histories of alcoholism can reduce their risk by choosing not to drink or strictly limiting the amount that they drink. This may be easier said than done, however, particularly for young people, who may lack the maturity to make

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### **MEDICAL COMPLICATIONS OF HEAVY DRINKING**

*Heavy chronic drinking affects virtually every organ in the body and substantially increases the likelihood of developing serious, potentially fatal medical problems. In some cases, abstinence or drinking less can reverse the damage alcohol does to the body.*

*Alcohol use also can interfere with the treatment of many illnesses and interact in dangerous ways with medications used to treat these illnesses.*

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### **ADDICTION TO OTHER DRUGS**

*Nicotine addiction, use of illegal drugs and misuse of prescription drugs frequently accompany heavy drinking. Dual addiction contributes to relapse.*

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### **BLOOD**

*Heavy drinking can lead to large red blood cell anemia, decreased production and efficiency of white cells, and decreased production of clotting factors and platelets, associated with bleeding.*

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### **BRAIN**

*Heavy drinking causes short-term memory loss.*

*Brain damage is common among alcoholics. In fact, alcohol is second only to Alzheimer's disease among the leading causes of adult dementia. Brain damage may continue even after patients stop drinking. Research suggests that women may be particularly vulnerable.*

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### **CANCER**

*Cancers of the head (mouth, pharynx, larynx and esophagus) are more common among heavy drinkers, especially those who smoke.*

*Women who drink heavily are at higher risk for developing breast cancer.*

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responsible decisions about their health. People use alcohol to feel good, at least initially, and many believe American society encourages drinking.

Alcohol is an addictive drug. Over time, its use can lead to craving and impaired control. Even if the decision to drink is voluntary at first, what happens after someone takes a drink depends to a large extent on an individual's genetic vulnerability to alcoholism, and how one's body and mind react to alcohol.

### ***Each person processes alcohol in a unique way.***

The differences between the way men and women process alcohol is the most obvious example. Women's bodies don't tolerate alcohol as well as men's. Women weigh less, have a smaller volume of blood and a lower ratio of body water to body fat, and their stomachs don't break alcohol down as efficiently. Because of their physiology, they develop alcohol-related medical problems more rapidly than men.

By the same token, ethnicity, in part, helps protect some people from developing alcoholism. As many as 35 percent of Chinese and Japanese people have a genetic predisposition that makes their skin flush and causes an unpleasant sensation when they drink. These physical reactions tend to discourage those who experience them from drinking.

Other research has shown that sons of alcoholic fathers very often have a much greater tolerance for alcohol. They can drink more without getting drunk or developing a hangover than sons of fathers who aren't alcoholic. This increased capacity for alcohol means they have to consume more to achieve alcohol's pleasurable effects. Their brain chemistry actually encourages heavier drinking.

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### **CARDIAC AND VASCULAR SYSTEMS**

*Light to moderate drinking can have positive effects on the cardiovascular system for older men and women, substantially reducing the risk of heart attacks and possibly strokes. But heavy drinking can lead to a variety of serious and life-threatening heart and cardiovascular problems, including:*

- *Increased risk of high blood pressure (hypertension)*
- *Heart attacks*
- *Abnormal heart rhythms*
- *Degeneration of the heart muscle*
- *Stroke*

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### **GASTROINTESTINAL SYSTEM**

*Alcohol can cause chronic and acute stomach problems, even among moderate drinkers, including:*

- *Ulcers, gastritis*
- *Gastro-esophageal hemorrhage*

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### **IMMUNE SYSTEM**

*Alcohol can impair the immune system, making heavy drinkers more susceptible to infections such as pneumonia, tuberculosis and septicemia.*

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### **LIVER AND PANCREAS**

*Heavy drinking can cause inflammation (hepatitis) and scarring (cirrhosis) of the liver. It can cause acute and chronic inflammation of the pancreas.*

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### **MENTAL ILLNESS**

*Heavy drinking worsens the symptoms of mental illness and interferes with treatment. At the same time, mental illness increases a patient's risk for developing alcohol problems. People with both mental illness and alcohol disorders are hospitalized more often and for longer periods of time than people with either a mental illness or an alcohol disorder.*

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Recent advances in neuroscience are enabling scientists to study how and when alcohol's repeated chemical interaction with the brain causes addiction in some people but not others. This research will help scientists understand why some people can't control their drinking after a certain point and why these individuals require increasing quantities of alcohol to feel its desired effects.

Through animal studies, scientists have concluded that alcohol and other addictive drugs change the "reward" circuitry of the brain by stimulating the dopamine system (which enables people to feel pleasure) and producing a kind of euphoria so intense that lab rats will ignore their basic needs in their desire to drink more. Less clear is why the brain doesn't return to normal after a person with alcoholism has stopped drinking long enough to end his or her physical dependence, or why people who have been addicted to alcohol continue to crave it even when they know their drinking will cause serious problems.

### ***Heavy, long-term use of alcohol may alter brain chemistry.***

Scientists theorize that people who drink heavily over a long period of time may suffer both short- and long-term damage to the brain's chemistry. They think that heavy drinking also may affect the "survival" circuitry that governs an individual's motivations, appetites, emotions and memory. At its most basic level, this survival circuitry teaches people to avoid danger. But over time, with heavy drinking, the brain's chemistry may be altered by psychological conditioning that limits an individual's ability to control his or her drinking, even in the face of extremely negative consequences.

Scientists believe that for people with alcoholism, the act of drinking itself becomes wired into this survival circuitry and literally hijacks the brain. The smell of beer – or any of a number of customized cues – can make a person with alcoholism crave alcohol as strongly as hunger and thirst make everyone want to eat food and drink water.

Psychological conditioning affects tolerance as well as craving. In one study, alcoholics were given drinks that tasted like alcohol but did not contain any of its active ingredients. Nevertheless, they reported feeling "high" as soon as they had consumed as many drinks as it usually took them to feel that way when they actually were drinking alcohol. These "learned" aspects of tolerance may be extremely difficult to "unlearn."

### **REPRODUCTION**

*Heavy drinking can compromise sexual function in both men and women.*

*Drinking during pregnancy can lead to:*

- *Premature birth*
- *Low birth-weight*
- *Fetal alcohol syndrome and fetal alcohol effects*

### **SKELETAL SYSTEM**

*Heavy drinking may reduce bone density, increasing risk of fractures.*

# Comparisons Among Alcohol-Related Problems, Including Alcoholism, And Other Chronic Diseases

	ALCOHOL-RELATED PROBLEMS	ASTHMA	DIABETES	HIGH BLOOD PRESSURE
<b>Prevalence</b>	13.8 million (includes 8.1 people with alcoholism)	17.6 million	10 million	50 million
<b>Total Economic Costs</b>	\$185 billion	\$11 billion	\$98.1 billion	\$40 billion
<b>Health Care Costs</b> <i>(including medical complications and treatment)</i>	\$26.3 billion	\$7.5 billion	\$44.1 billion	\$29 billion
<b>Other Medical Complications</b>	YES (heart & liver disease, cancer, depression, fetal alcohol syndrome)	NO	YES (heart disease, adult blindness, kidney failure, lower limb amputation)	YES (heart disease, kidney disease, stroke)
<b>CAUSES</b>				
<b>Controllable Risk Factors</b>	YES ▶ limit drinking	YES ▶ limit exposure to allergens	YES ▶ limit food intake ▶ exercise regularly	YES ▶ limit food and fat intake ▶ limit salt intake ▶ exercise regularly
<b>Uncontrollable Risk Factors</b>	YES	YES	YES	YES
<b>Estimated Genetic Influence</b>	50–60%	36–70%	30–55% type I 80% type II	25–50%
<b>TREATMENT</b>				
<b>Cure</b>	NO	NO	NO	NO
<b>Clear Diagnostic Criteria</b>	YES	YES	YES	YES
<b>Research-based Treatment Guidelines and Protocols</b>	YES	YES	YES	YES
<b>Effective Patient and Family Education</b>	YES	YES	YES	YES
<b>Percent of Patients Who Follow Treatment Regimens Faithfully</b>	40–60%	30%	30%	30%
<b>Percent of Patients Who Relapse Within a Year</b>	40–60%	50–70%	30–50%	50–70%
<b>HEALTH INSURANCE</b>				
<b>Equality (Parity) With Other Medical Conditions</b>	NO	YES	YES	YES

Sources: National Institute on Alcohol Abuse and Alcoholism (1994, 2000a, 2000b); Centers for Disease Control and Prevention (1999); National Center for Health Statistics (no date: a, b, c); McLellan et al (2000); American Lung Association (no date); American Heart Association and National Pharmaceutical Council (2000).

## ***New medications may make it easier to treat alcoholism as a chronic disease.***

Advances in neuroscience that have led to a better understanding of alcohol's direct effects on brain chemistry also have facilitated the development of new medications for treating alcoholism in conjunction with inpatient or intensive outpatient treatment and participation in self-help groups. The development and use of these pharmaceuticals as part of alcoholism treatment offers a critical parallel to the way other chronic diseases are managed.

While physicians who treat people with asthma, diabetes and high blood pressure often advise patients to change the behaviors that exacerbate these conditions, they also rely on medications to help control these diseases. Until recently, physicians treating alcoholism haven't had this essential tool of chronic disease management. Absence of pharmacological treatment may have contributed to a sense among primary care physicians that they couldn't do much to help patients with alcoholism.

Although the U.S. Food and Drug Administration (FDA) approved disulfiram (brand name: Antabuse) to treat alcoholism in the 1940s, it never has been widely used. Disulfiram makes drinking alcohol an extremely unpleasant experience. It causes patients to vomit, flush and get headaches. These side effects can be so severe that the drug's administration requires close supervision.

In 1994, the FDA approved naltrexone (brand name: Revia®). Instead of making patients sick if they drink, it reduces their appetite for alcohol. Acamprosate, now under FDA review, has been used successfully in Europe to reduce craving. Clinical trials for both naltrexone and acamprosate have shown that patients taking either drug show lower rates of relapse than patients who are given a placebo.

Medications, however, are not silver bullets in the treatment for alcoholism. To achieve their full potential, medications for alcoholism, like those for asthma, diabetes and high blood pressure, must be used in conjunction with behavior change. People with alcoholism face an additional hurdle: replacing a drug they physically crave (alcohol) with one that has side effects, even those as mild as the ones associated with a medication like naltrexone. The side effects associated with medications to treat ANY disease can significantly reduce patients' willingness to take these drugs. Yet, without the medications, control of the symptoms of chronic illnesses can be very difficult.

## ***Treatment success for any chronic disease depends to a large extent on how well patients follow their doctors' orders.***

Like people with other chronic diseases, individuals with alcoholism who follow treatment recommendations, including education, counseling and medication, show significant improvement during treatment and for 6-12 months afterwards. Forty to 60 percent remain continuously abstinent after a year; another 15-30 percent resume drinking (though not at levels at which they become dependent again). Patients who do return to drinking usually haven't complied with the behavior changes or medications that have been prescribed to them.

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Whether or not persons with asthma, high blood pressure or diabetes improve also depends on how well they follow their doctors' orders. In an article published by the Journal of the American Medical Association comparing addiction to these conditions, the authors noted that fewer than 40 percent of patients with asthma or high blood pressure take their medications as prescribed. Diabetics do a little better: nearly 60 percent take their insulin, perhaps because they quickly feel worse physically if they don't. But no group follows recommendations to change their behavior and/or diet very well. Fewer than 30 percent of adults with asthma, diabetes or high blood pressure are able to make the behavioral changes necessary to improve their health and prevent the re-occurrence of symptoms.

Patient difficulty in following doctors' orders may explain why relapse rates for these conditions are similar to those for alcoholism. During the course of a year, 30-50 percent of adults with diabetes and 50-70 percent of adults with high blood pressure or asthma will suffer a re-occurrence of their symptoms severe enough to require medical intervention, sometimes including hospitalization.

Despite the numerous points of similarity between alcoholism and other chronic diseases, it is important to remember some significant differences. Although early changes in behavior patterns can prevent or ameliorate these diseases, once adults with asthma, diabetes or high blood pressure advance to a certain stage, behavior change alone is not sufficient to treat them. Medication must be prescribed for their health to improve.

Some people with alcoholism, however, stop drinking without formal medical treatment. Lack of formal medical treatment and limited health insurance coverage has meant that Alcoholics Anonymous and other support groups often have been the only help available to people with alcoholism. But it would be shortsighted and tragic to interpret some people's success with support groups alone as evidence to maintain the status quo.

Sound public health policy for chronic illnesses is not based on self-help behavior change alone. If it were, rates of uncontrolled high blood pressure, diabetes and asthma would soar.

## **Alcoholism Can and Should Be Treated as a Chronic Disease**

Early intervention is essential in preventing alcohol problems, including alcoholism, just as it is for other chronic diseases. But while a blood pressure test to diagnose hypertension is part of routine medical practice, fewer than 30 percent of primary care physicians carefully screen their patients for health problems related to their use of alcohol or other drugs.

A number of effective screening instruments, including written questionnaires that can be administered and evaluated in less than five minutes during a regular office visit, are readily available. These screening instruments can help primary care physicians identify problem drinking in its early stages, when brief interventions can help patients cut back on their drinking before they become physically dependent on alcohol.

Screening instruments also are crucial in helping primary care physicians form a preliminary diagnosis of alcoholism. If screening indicates that a patient has alcoholism, a more extensive diagnostic assessment using criteria developed by the American Psychiatric Association will be necessary. Patients who appear to be alcoholic should be referred to an addiction specialist for this purpose and encouraged to attend Alcoholics Anonymous and other support groups.

## ***Treating alcoholism as an acute illness is shortsighted and has led to stigma.***

Lack of widespread screening and brief interventions, however, has meant that alcoholism is treated more often as an acute illness than a chronic disease. Medical intervention frequently occurs only when an individual becomes seriously ill, and detoxification is necessary. Detoxification, which typically lasts three to five days, helps patients overcome their physiological and psychological dependence on alcohol. Generally, detoxification takes place under medical supervision. Brief hospitalization may be required for some severely addicted individuals; for others, treatment can be completed on an outpatient basis.

Following detoxification, patients often are left to their own devices. Some find their way to specialty treatment or Alcoholics Anonymous or other support groups and stay sober for as long as they remain in rehabilitation. But upon discharge, much as if they just had a cast removed from a broken arm, their treatment comes to an end. Six to 12 months later, their recovery is evaluated by a single criterion: have they been continuously abstinent?

Failure to understand alcoholism as a chronic disease has contributed to a perception that treatment is ineffective, and that people don't quit drinking because they are weak-willed and don't try hard enough. If a person resumes drinking after detoxification, many would judge such a relapse to be evidence that treatment has failed. The opposite holds true for adults with asthma, diabetes and high pressure: relapse indicates that further treatment is necessary. Effective health care practitioners don't expect such patients to remain in good health without continued medical monitoring and periodic intervention.

The force of stigma cannot be underestimated in any discussion of alcoholism. Intoxication, as well as the destructive effects of alcohol, increase the visibility of alcoholism. On the other hand, patients who achieve abstinence or reduce their drinking typically disappear from view. Support groups actively encourage anonymity. Such anonymity makes it almost impossible to collect reliable scientific data and difficult to build constituency groups to form and improve public policies for alcohol problems and treatment. In the public eye, individuals who successfully control their chronic illness of alcoholism are rarely visible, while those who still struggle and have relapses are easy to see and to remember.

One of the most insidious ways that stigma becomes apparent is through the discriminatory way health insurance covers alcoholism. For example, Medicare pays just 50 percent of outpatient treatment costs for alcoholism but 80 percent for other medical conditions. Individuals with private health insurance confront benefit limitations on alcohol treatment that do not exist for other chronic

diseases even though full equality in coverage (parity) could be achieved for an overall cost increase of 0.3 percent in health insurance premiums.

The limits and barriers in employment-based health insurance and in public health insurance programs such as Medicare mean that, once people are motivated to seek treatment, they may not be able to get the help they need. Without treatment and continued medical monitoring, the chance of relapse increases significantly.

As the nation seeks to improve treatment for diabetes, hypertension, asthma, and other chronic illnesses, it is time to include alcoholism among that group of chronic treatable illnesses.

## **Straightforward Steps at Many Levels**

Employers, health care professionals, policy makers and individuals all can take steps to ensure that alcoholism is treated as a chronic disease.

Because the majority of Americans get their health insurance through their jobs, employers can positively influence the way the country addresses alcoholism. At the same time, they can reap productivity gains and savings from a reduction in alcohol-related healthcare costs.

### ***Options for employers:***

- Offer health insurance coverage for alcoholism comparable to that for other medical conditions.
- Expect more from managed care and health insurance vendors – only 25 per cent of people with serious drinking problems, including alcoholism, receive any treatment for their illness, jeopardizing their health, driving up other health care utilization and cutting productivity.
- Educate employees about the availability of alcoholism treatment, emphasizing that treatment is available without fear of job repercussions.
- Offer employee assistance programs to help people with alcoholism.

Employers can implement all of these measures at relatively low cost. A recent study estimated that treatment for alcoholism and other drug addictions could be covered at the same level as for other chronic diseases for as little as 43 cents per beneficiary per month, or just \$5.11 per employee and family member per year.

More information about what employers can do is available in "Seven Tools to Lowering the Business Costs of Alcohol Problems," available from Ensuring Solutions to Alcohol Problems or by visiting <http://www.ensuringsolutions.org>. The National Business Coalition on Health is another resource for employers. For information, visit <http://www.nbch.org/>.

## ***Options for health care professionals:***

- Learn how to diagnose problem drinking and alcoholism with the AUDIT ([http://www.who.int/substance\\_abuse/docs/audit2.pdf](http://www.who.int/substance_abuse/docs/audit2.pdf) and <http://www.who.int/substanceabuse/PDFfiles/bimanbro.pdf>) and CAGE (<http://www.niaaa.nih.gov/publications/inscage.htm> and <http://www.niaaa.nih.gov/publications/cage.htm>) screening instruments.
- Maintain a list of up-to-date referral sources for problem drinkers and patients with alcoholism, including publicly and privately funded treatment centers and local member physicians of the American Society of Addiction Medicine (<http://www.asam.org>) and the American Academy of Addiction Psychiatrists (<http://www.aap.org>).
- Encourage patients with alcoholism to participate in support groups such as Alcoholics Anonymous (<http://www.alcoholics-anonymous.org>).
- Learn more about prescription drugs to treat alcoholism.

## ***Options for policy makers:***

- Examine current unequal coverage mandates. For example, Medicare requires a 20 percent co-payment for outpatient medical treatment, but a 50 percent co-payment for alcohol treatment. The State-Children's Health Insurance Program (S-CHIP) requires comprehensive coverage for treatment of physical illnesses, but it makes coverage of alcohol treatment completely optional to states. In many states, Medicaid covers little or no alcohol treatment. The unequal coverage of alcoholism and alcohol-related problems may result in more health problems, family distress and total health care costs than are saved by restricting access to alcohol treatment.
- Examine the experiences of the seven states and the Federal Employees Health Benefits Program that require employment-based health insurance to cover alcohol treatment at levels equal to that for other illnesses.
- Review state laws that permit health insurers to refuse to reimburse patients for emergency room and trauma center treatment if alcohol is involved.

## ***Options for individuals and families:***

- If you have a concern about your own drinking or that of a family member or friend, consider taking a confidential, on-line alcohol screening at <http://www.alcoholscreening.org> or call 800/NCA-CALL for written material to help you assess your risk for developing alcoholism.
- If you are in recovery from alcoholism, consider joining local advocacy efforts to improve the way your community and the nation address alcohol problems (<http://www.facesandvoicesofrecovery.org>).

## Expert Consultant: David C. Lewis, M.D.

This primer was developed in consultation with David C. Lewis, M.D., a professor of Medicine and Community Health and the Donald G. Millar Distinguished Professor of Alcohol and Addiction Studies at Brown University. In 1982, Dr. Lewis founded the Brown University Center for Alcohol and Addiction Studies.

Dr. Lewis is also project director of the Physician Leadership on National Drug Policy and a member of the board of directors of the American Society of Addiction Medicine and the National Council on Alcoholism and Drug Dependence. He is the author of over 400 publications and the founding editor of DATA, the Brown University Digest of Addiction Theory and Application.

In 1997 the American Medical Association honored Dr. Lewis with its Education and Research Foundation Award for his contributions and leadership in championing the inclusion of alcohol and other drug problems in the mainstream of medical practice and medical education.

Dr. Lewis is a graduate of Brown University and Harvard Medical School. He is a fellow of the American College of Physicians.

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"Treating Alcoholism as a Chronic Disease" was researched and written by Jeffrey Hon.

Ensuring Solutions to Alcohol Problems (Ensuring Solutions) at the George Washington University Medical Center in Washington, D.C., seeks to increase access to treatment for individuals with alcohol problems. Working with policy makers, employers and concerned citizens, Ensuring Solutions provides research-based information and tools to help curb the avoidable health care and other costs associated with alcohol use and improve access to treatment for Americans who need it. The project is supported by a grant from The Pew Charitable Trusts. For more information, please visit the Ensuring Solutions Website, <http://www.ensuringsolutions.org>.

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