

The Active Ingredients of Effective Treatment for Alcohol Problems

Introduction

Nearly 15 years ago the nation's Institute of Medicine released what still stands as the most comprehensive analysis of treatment for alcohol problems ever conducted in the United States. The report, called *Broadening the Base of Treatment for Alcohol Problems*, defined treatment as follows:

Treatment refers to the broad range of services, including identification, brief intervention, assessment, diagnosis, counseling, medical services, and follow-up, for persons with alcohol problems. The overall goal of treatment is to reduce or eliminate the use of alcohol as a contributing factor to physical, psychological and social dysfunction and to arrest, retard, or reverse the progress of any associated problems.

The committee of experts who authored the report envisioned a treatment system that relied on health professionals and community agencies, as well as Employee Assistance Programs in the workplace, to identify the large number of people who experience a few alcohol problems and treat them with brief interventions. The frontlines of this system also would be responsible for identifying the smaller number of people with serious alcohol problems and referring them to specialized treatment.

This system bears many similarities to the one that the nation already uses to identify and treat hypertension. Blood pressure tests are administered during routine doctors' visits, at health fairs and

as part of employee wellness programs. This kind of mass screening facilitates early diagnosis of hypertension and heart disease when it can be more easily and inexpensively treated.

By making it possible to intervene with people long before they present serious physical symptoms, the system improves mortality rates and reduces the health care costs associated with treating advanced cases of heart disease. It also reinforces the knowledge that even though millions of Americans continue to die from heart disease, hypertension is still highly treatable, especially in early stages.

However, despite the recommendations of the Institute of Medicine, alcoholism is almost always treated as an acute illness. People rarely get the help they need until they are in crisis. Then, they are treated for a brief period of time and released, as if cured. This model, which fails to provide early detection or continuing care, is more appropriate for treating broken bones than a **chronic disease** of the brain.

ACTIVE INGREDIENTS OF EFFECTIVE ALCOHOL TREATMENT

- Early detection, including screening and brief interventions (for non-dependent problem drinkers)
- Comprehensive assessment and individualized treatment plan
- Care management
- Individually delivered, proven professional interventions
- Contracting with patients
- Social skills training
- Medications
- Specialized services for medical, psychiatric, employment or family problems
- Continuing care
- Strong bond with therapist or counselor
- Longer duration (for alcohol dependent persons)
- Participation in support groups
- Strong patient motivation

Sources: McLellan, T.A. 2002; Miller, W.R. 2002; National Institute on Drug Abuse. 1999; Project MATCH Research Group. 1997.

The acute care model fails to recognize that people do not suddenly “come down” with alcoholism. Alcohol problems occur along a **continuum**. Along the way, there are many opportunities for early intervention. The acute care model misses these opportunities to the detriment of individuals with alcohol problems and society as a whole, which suffers from the destructive effects of these problems. The stigma associated with alcohol problems exacerbates the shortcomings of this approach to treatment by discouraging recognition and medical treatment of alcohol problems.

The current system, based as it is on the acute care model, also undermines the effectiveness of alcohol treatment because it does not allow for the additional services necessary to help an individual avoid relapse. Patients in the early stages of recovery are routinely released from treatment with little or no continuing medical support or monitoring even though scientists believe that the brain chemistry of people with alcoholism may never return to normal. Many of these individuals will require – and would do quite well with – the kind of continuing care that is routinely provided for patients with other chronic diseases.

All the elements for treating alcohol problems using the chronic care model exist. Research has demonstrated alcohol problems can be treated effectively with a combination of active ingredients that can be shaped into an individualized treatment plan. When used in the right mix, much as physicians now recommend behavior change and medications to treat hypertension and other chronic diseases, these elements can dramatically improve outcomes for people in alcohol treatment.

Early identification of alcohol problems is the first active ingredient of effective treatment.

Alcohol problems now lack an **early detection** system, the first active ingredient for effective treatment, although the tools for building such a system are readily available. In fact, both the National Institute on Alcohol Abuse and Alcoholism and a recent independent analysis of treatments for alcohol problems ranked **brief intervention**, a series of short counseling sessions, among the most clinically effective techniques for reducing alcohol consumption for problem drinkers who are not yet severely dependent on alcohol.

Yet use of alcohol **screening**, which employs scientifically validated questionnaires about the context, frequency and amount of an individual's drinking to identify those who would benefit from brief interventions (as well as individuals who need more extensive treatment) remains limited. Fewer than 10 percent of managed care organizations, which provide health care services to the vast majority of working Americans, now require screening for alcohol and other drug problems.

As a result, people receive treatment only when the symptoms become so serious that they cannot be ignored. If this were the case in hypertension, patients would not be given a blood pressure test until after they had suffered from a heart attack.

Of the nearly 14 million Americans who need alcohol treatment, the federal government estimates that only two to three million people are treated for alcohol problems each year. Although many of them also are addicted to other drugs, this primer focuses on people like **Robert** and **Catherine** (see profiles at end), two patients with private health insurance who are being treated primarily for alcohol problems. Their case histories show how some active ingredients of alcohol treatment are currently being put into practice.

WHAT ARE SCREENING AND BRIEF INTERVENTION?

Confidential **alcohol screening** offers a reliable, inexpensive and quick way to identify individuals whose drinking patterns indicate that they have alcohol problems or are at risk for developing them. Trained professionals, using scientifically validated questionnaires about the context, frequency and amount of an individual's drinking, can administer these screenings and interpret the results in less than five minutes. Alcohol screenings are conducted successfully in a variety of environments, including hospital emergency rooms, doctors' offices and Employee Assistance Programs.

If screening indicates that a patient is at risk for alcohol problems, a comprehensive assessment can be conducted to determine if a patient may benefit from a **brief intervention** or if more extensive treatment will be necessary. Brief interventions can be delivered over the course of five or fewer routine office visits. First, a health care professional uses the results of a positive alcohol screening test to express medical concern about a patient's drinking and advises him or her to drink less. The health care professional also helps the patient develop a plan of action to achieve this goal and sometimes provides a workbook for this purpose. Other components include follow-up visits and one or two telephone calls for reinforcement.

Alcohol treatment now typically begins with acute intervention.

By the time most people enter alcohol treatment, an intensive, expensive intervention is required to stop heavy drinking that is causing harm to themselves or others. This initial stage of treatment is often called detoxification. Simply put, detoxification rids the patient's body of alcohol and tries to make his or her mind receptive to continuing treatment. It seeks to accomplish this by first stabilizing physiological and emotional symptoms caused by the sudden termination of heavy drinking.

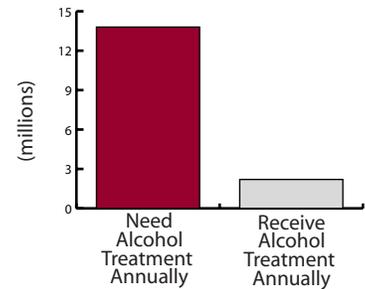
Treatment professionals then encourage the stabilized patient to recognize the existence of a drinking problem, and motivate him or her into taking action to address that problem. While successful detoxification is necessary to continue treatment, detoxification alone cannot engender the broad behavioral change people with alcoholism need to get better. Unfortunately, one national survey conducted in the late 1990s indicated that nearly 80 percent of patients who received hospital-based detoxification services were discharged without receiving any further inpatient treatment.

The detoxification process begins with an assessment of the level of the patient's intoxication and the severity of his or her withdrawal symptoms. Though most patients endure several days of moderate physical and psychological distress, a significant proportion of dependent drinkers (particularly those who also are experiencing other drug problems) can undergo a very serious withdrawal syndrome. Symptoms can include headaches, bone pain, fever, chills, watery eyes, runny nose, diarrhea and severe emotional upset.

In extreme cases, withdrawal from alcohol can lead to seizures and cardiac irregularities that can be life threatening. The most severely addicted patients, like *Robert*, or those with serious medical complications or co-occurring psychiatric disorders, require hospitalization and medications. But for most people, detoxification with and without medication assistance can be completed on an outpatient basis as long as the person's withdrawal syndrome is closely monitored to ensure that no additional physical complications arise and that all drinking has ceased.

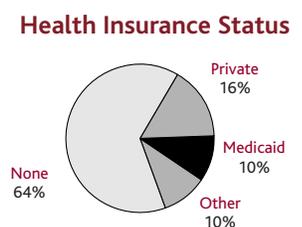
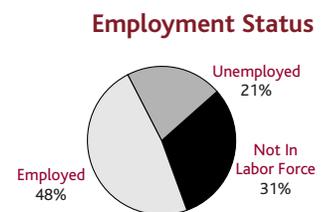
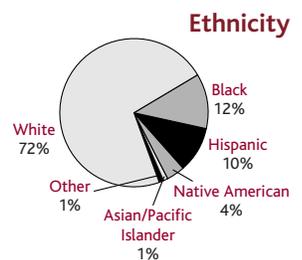
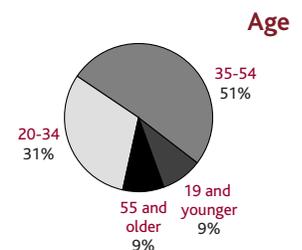
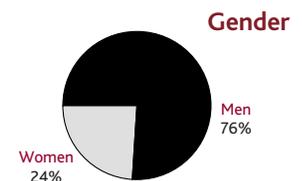
* For scientific purposes, these statistics reflect admissions to publicly and privately funded treatment facilities for patients who are being treated primarily for alcohol problems rather than for multiple addictions. Many other patients are being treated for alcohol and a secondary drug problem. The majority of the patients included were admitted to publicly funded facilities.

Few American Treated



Sources: NIAAA 1998; SAMHSA 2002

Who Is Being Treated?*



Sources: SAMHSA 2002

Clinical research indicates that in most cases detoxification can be completed in 2-10 days, with the average being 3-5 days. The fact that it can be conducted successfully on an outpatient basis can make it more acceptable to problem drinkers who want to avoid the stigma of being treated in a detoxification facility.

An important component of the acute intervention stage once the patient has been stabilized is a **comprehensive assessment** of a patient's needs. A good assessment is critical to ensure the development of an **individualized treatment plan**. It includes evaluations of the medical and psychiatric status of the patient as well as his or her social context.

By providing a detailed picture of the particular kind of alcohol problem that a particular patient is having at a particular point in time, a good assessment also allows "problem-to-service matching." Inpatient care, for example, may be necessary for a patient with an advanced case of liver cirrhosis or for a patient with a severe, co-occurring psychiatric disorder.

Problem-to-service matching also recognizes how a patient's personal circumstances can hinder his or her recovery. If a patient is unemployed, for example, vocational training may be required. Similarly, women with children may need child care. Research has shown that these and other **specialized services**, although often unavailable, contribute to better outcomes.

WHAT IS A COMPREHENSIVE ASSESSMENT? WHAT IS AN INDIVIDUALIZED TREATMENT PLAN?

People with alcohol problems differ in many fundamental respects that can affect their response to treatment. A college student who binges on weekends, for example, is using alcohol differently than an elderly person who begins drinking heavily in response to the loss of a spouse. The kinds of alcohol problems that individuals experience differ, too. Heavy drinking may be causing marital problems for one person or interfering with another's job performance.

A comprehensive assessment provides a detailed picture of the kind of alcohol problem an individual is having at a particular point in time. It takes into consideration a patient's age, gender, ethnicity and culture, and should include the medical and psychiatric status of patient as well as his or her social context. A comprehensive assessment forms the basis for an individualized treatment plan that addresses these variables (in addition to severity of dependence) and matches patients to an appropriate treatment setting.

An individualized treatment plan makes it possible to adjust the goals of treatment as appropriate and to engage a patient more actively in treatment. Problem drinkers who are not alcoholics, for example, may be more willing to participate in an alcohol treatment program that doesn't demand abstinence. An individualized treatment plan also recognizes that patients will need varying combinations of active ingredients that can be adjusted as necessary during the course of treatment and recovery.

Both the American Psychological Association and the American Society for Addiction Medicine have developed clinical instruments to facilitate comprehensive assessments and individualized treatment plans.

Counseling to change behavior follows detoxification to stabilize the gains made during the acute intervention stage of alcohol treatment.

Once the acute intervention stage has been completed, practitioners encourage patients to begin a limited period of frequent counseling to help them change their behavior. During this period treatment professionals try to prevent patients from returning to drinking at levels that will require repeating the detoxification process. They also work to help restore personal health and improve social function. In doing so, they help patients, family members, employers and communities maximize the benefits of alcohol treatment over the long term.

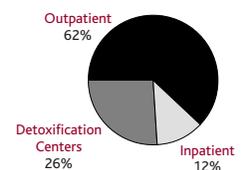
While most popular culture (based on historical practice) portrays alcohol treatment as “going away to rehab,” in fact today only a very small number of the 2-3 million patients treated annually enter a residential setting. As in all other areas of healthcare, this shift from hospital and residential care to outpatient treatment is due to many factors, most involving costs and research demonstrating that not all patients require detoxification or treatment that is initiated or carried out entirely in an inpatient setting.

The treatment field has made substantial progress over the past two decades in developing standardized placement criteria for treating patients with effective interventions that seek to reduce inappropriate use of expensive inpatient hospital services. In spite of this progress, however, the content and length of alcohol treatment still most often depends on the setting where the patient is being treated (as well as limits on the coverage provided by a particular health insurance plan and the patient’s ability to pay) rather than the patient’s clinical status and needs. Patients can remain in residential programs 30-90 days or in outpatient abstinence-oriented programs 30-120 days.

Outpatient treatment can be effective in helping motivate patients to change their behaviors and to develop a lifestyle that can protect them from the continuing risks of return to alcoholic drinking. Nonetheless, the outpatient setting of care also is associated with some obvious patient management problems—including ready access to alcohol—that can interfere with the behavioral change process.

One staple component of outpatient treatment is group therapy – typically conducted by a counselor or therapist. This therapy uses the power of shared experiences to promote acceptance of the alcohol problem and the power of shared support to promote willingness and ability to deal with it. However, many patients like *Catherine* initially do not like the idea of sharing their problems with a “group of strangers” and this resistance, coupled with the additional complications of an outpatient environment, may result in early dropout, or “lack of adherence” to treatment in medical terms.

Where Are People Being Treated For Alcohol Problems?



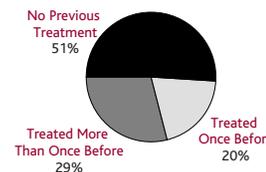
Source: SAMHSA2002

During these group therapy sessions, counselors educate patients about addiction and help them examine the psychology and social influences behind their drinking. With feedback, guidance and support, they encourage patients to change destructive behavior and teach them relapse prevention skills. Some patients also establish bonds with other members of the group who can provide them with additional support. Counselors also generally advise patients to attend support groups such as Alcoholics Anonymous (AA).

Once patients have completed detoxification and a limited period of counseling their alcohol treatment usually comes to an end unless their health insurance coverage provides for additional continuing care sessions. More often than not, however, patients must sustain the gains they have made during alcohol treatment solely through voluntary participation in a peer support group. Unlike most other chronic disease treatments, current alcohol treatment rarely offers continuing professional care to prevent relapse and further hospitalization.

Most people with alcoholism eventually relapse at least once. Nevertheless, those who do relapse and return for care also are more likely to complete a subsequent period of further treatment. The high probability of relapse, perhaps more than any other aspect of alcoholism, is evidence of the chronic nature of the illness. No cure exists for alcoholism, just as no cure exists for advanced cases of asthma, diabetes and hypertension. Although patients with any of these conditions relapse at comparable rates, only people with alcoholism are expected to improve entirely on their own after receiving a limited period of care. The fact that people who relapse are more likely to complete a subsequent period of treatment after relapsing suggests that the effects of alcoholism treatment, like those for other chronic diseases, may be cumulative over time and argues for a treatment delivery system that takes this into account.

How Many People Currently Being Treated Have Been in Alcohol Treatment Before?



Source: SAMHSA2002

Several interventions, based on different treatment philosophies, are effective in reducing alcohol consumption among patients.

Until the last decade, the actual therapeutic content of treatment programs had been a subject of debate. Federal researchers designed Project MATCH, the largest trial of its kind ever conducted in the United States, to test the hypothesis that patients would respond better to a particular kind of professional intervention based on an assessment of ten individual characteristics. These included gender, severity of dependence and motivation to change. They were used to match patients to one of three psychosocial therapies that represented very different treatment philosophies.

Though the matches studied did not predict differential levels of improvement as had been expected, Project MATCH demonstrated that these **individually delivered professional interventions** were equally

effective in helping patients reduce their drinking during a three-year follow-up period. Other research has proven that professional interventions involving the spouses, significant others and family members of individuals with alcohol problems also produce comparable results.

Scientific validation of the 12-step recovery approach was one of the most important findings to emerge from Project MATCH. For the first time, researchers had clinical evidence that a professional intervention based on the first three steps of AA and formalized specifically for evaluation purposes, increased likelihood of abstinence while the intervention was taking place and afterward.

Researchers also learned that a professional intervention can powerfully influence a patient's continued involvement with a 12-step support group after the intervention stage has ended. This finding has great significance because since the nation lacks the inclusive, long-range system needed for alcohol treatment, participation in such a program is typically the *only* post-intervention option for many patients.

Researchers believe that the success of these interventions depends on several factors:

EFFECTIVE PROFESSIONAL INTERVENTIONS

The National Institute on Alcohol Abuse and Alcoholism has established through years of clinical research the effectiveness of the following interventions to treat alcohol problems. Professional delivery of these interventions follows established protocols that have been published in manual form.

Cognitive behavioral therapy (CBT) primarily targets alcohol-dependent individuals. It assumes that alcoholism is learned problematic behavior that begins and continues with the patient's distorted belief that alcohol helps him or her cope with stress. CBT therapists usually try to change how a patient thinks about alcohol, and to assist a patient in identifying stressful situations and alternative ways of coping with these situations. CBT allows patients to establish the goals of treatment. These can range from controlled drinking to abstinence.

Motivational enhancement therapy (MET) targets all problem drinkers, including alcohol dependent individuals. It is based on principles of motivational psychology and focuses on increasing a patient's internal motivation to change his or her drinking behavior. MET doesn't try to guide the patient through recovery step-by-step. Instead, it uses objective feedback and empathic listening techniques to influence positive change. MET is a less intensive intervention, requiring only four sessions to complete.

Twelve-step facilitation therapy (TSF) primarily targets alcohol dependent individuals. It is grounded in the concept of alcoholism as spiritual and medical disease. Patients are encouraged to accept an alcoholic identity and to become involved in support group activities (going to Alcoholics Anonymous meetings, getting a sponsor and working the 12 steps of AA). Abstinence is the goal of TSF.

Behavioral marital therapy (BMT) and other couples and family therapies primarily target alcohol-dependent individuals. They recognize that spouses, significant others and family members of patients being treated for alcoholism can play a critical role in recovery. These therapies seek to enhance communication between couples and among family members to improve the functioning of relationships. This leads to longer retention in treatment for patients, longer periods of abstinence among patients, and less anxiety and enabling behavior among non-alcoholic spouses, significant others and family members.

Sources: Project MATCH Research Group. 1997; National Institute on Alcohol Abuse and Alcoholism. 2003. *List of Alcohol Interventions for Substance Abuse and Mental Health Services Administration Science-To-Service Collaboration* (personal communication).

- The therapy protocol for each intervention must be consistent.
- Treatment adherence must be high.
- Patients should receive substantial amounts of the specified therapies.
- They should be called between sessions and sent reminder notes.
- Friends and family members should be recruited to provide independent verification of the results.

In short, the proficiency and day-to-day manner with which alcohol treatment is delivered – **care management** – may matter as much as the specific kind of intervention that patients like *Robert* and *Catherine* receive.

Medications are an underutilized active ingredient of alcohol treatment.

The results of Project MATCH and the recent development of new **medications** to treat alcohol problems have steered researchers in an important new direction: they are now looking at how different professional interventions can be combined with medications to produce treatment that is even more effective.

Treating alcohol dependence with medication has been possible since the late 1940s with disulfiram (Antabuse). An “aversive” medication, it makes people sick if they drink alcohol, which is both its greatest strength and weakness. Disulfiram, when taken, successfully prevents people from drinking because they experience vomiting, flushing, anxiety and other symptoms after imbibing alcohol. But patients often respond by simply failing to take the medicine. Studies indicate that disulfiram works best in situations where its administration can be closely monitored.

In 1994, naltrexone (Revia) became only the second drug approved by the U.S. Food and Drug Administration to treat alcohol problems. Today, scientists are clinically testing at least four other drugs. Like naltrexone (and unlike disulfiram) they all interact with brain chemistry and help patients control the urge to drink by altering the effects of alcohol.

Naltrexone, an opiate antagonist, was originally approved to treat heroin addiction. But as research about alcohol’s effect on the brain advanced rapidly in the 1990s, scientists realized that naltrexone also interfered with the same neurotransmitters, or chemical messengers, that produce the feelings of pleasure experienced by drinkers.

MEDICATIONS USED TO TREAT ALCOHOLISM

Aversive medication

- disulfiram (Antabuse)

Effect-altering medications

- acamprosate
- nalmefene
- naltrexone (Revia)
- ondansetron
- topiramate

Clinical trials of naltrexone established that patients who were given the drug experienced less euphoria after drinking than those who were given a placebo. Researchers believe that if alcohol loses its reinforcing properties over time, this may “recondition” heavy drinkers’ expectations about the drug and help them avoid relapse. The trials also suggested that naltrexone helped to block the brain’s ability to respond to the environmental cues that contribute to the overwhelming desire to drink among people with alcoholism.

Naltrexone has other benefits, too. Many people with alcoholism report that once they begin drinking – after being “primed” by the first drink – they can’t stop. Naltrexone helps them drink less if they do resume drinking. Finally, naltrexone, when administered in typical doses over a 12-week period, produces only minor side effects (mild nausea) in a small number of patients.

As a result of their “effect-altering” qualities, naltrexone, nalmefene and topiramate (two other opiate antagonists now being tested), show great promise in helping patients change their behavior when used in conjunction with proven professional interventions. Researchers believe these drugs may be particularly useful in treating patients with the strongest urges to drink, as well as those with other illnesses or disorders who suffer from chronic pain, impaired learning skills and social functioning. (Some people may turn to alcohol to ease such symptoms.) Naltrexone may also offer the potential as a “relapse prevention” drug for patients who anticipate periods of difficulty without alcohol (such as going on vacation) or who go through serious life changes during early recovery (such as the death of a family member or close friend).

Another medication, acamprosate, also alters the effects of alcohol though it is not an opiate antagonist. Indeed, researchers do not completely understand how this drug works but they believe it corrects the damage heavy drinking causes to another set of neurotransmitters. Acamprosate has been used to treat more than a million people in other countries and appears to increase abstinence during the first 30-90 days of alcohol treatment, when the risk for relapse is greatest.

Federal researchers are currently conducting clinical trials with both naltrexone and acamprosate in conjunction with professional interventions. Other researchers believe that the two drugs may one day be used together to treat alcohol problems in much the same way that more than one drug can be prescribed to control high blood pressure.

Even newer research shows the potential for making more targeted pharmacological interventions. Researchers have long recognized that there are two primary types of alcoholism, early and late onset.

ALCOHOLISM AND THE BRAIN’S CHEMISTRY

Imbalances or changes in a person’s brain chemistry and circuitry contribute to the development of alcoholism. Like other illnesses such as depression, alcoholism is characterized by a breakdown of some sort in the process by which the nerves in the brain send and receive messages. Neurotransmitters are chemical messengers that facilitate communication between nerve cells. These messengers travel across the space between the two cells, the synapse. If there is a breakdown anywhere along the path, neurotransmitter supplies become inadequate, leading to adverse symptoms. In people with alcoholism, the messages that say “danger!” are particularly affected. Such people may suffer both short- and long-term damage to the brain’s chemistry as well as changes in the “survival” circuitry that governs their motivations, appetites, emotions and memory. Effect-altering medications to treat alcoholism help to restore the correct chemical balance to the brain.

Patients with early onset alcoholism, in which the genetic component is more evident, rapidly progress to dependence before the age of 25 and usually die prematurely of alcohol-related health problems or become abstinent. Patients with late onset alcoholism progress much more slowly and often continue to drink and experience alcohol problems throughout their lives.

In a clinical study of the drug ondansetron, a serotonin antagonist, researchers discovered that it increased abstinence and reduced the number of drinking days among patients with early onset alcoholism. For patients with late onset alcoholism, ondansetron worked no better than placebo. This research supports the need to understand variations in the types of alcoholism as well as the need to continue studying the specific changes in brain chemistry caused by heavy drinking. It also means that rapid developments in drugs to target specific genes have the potential to greatly fine-tune the pharmacological interventions for alcoholism.

None of these new medications can “cure” alcohol problems, however. To achieve maximum effectiveness all must be taken in conjunction with counseling as part of a comprehensive treatment plan. And while none has the serious side effects of disulfiram, they face the same challenges that continue to complicate use of that drug in alcohol treatment:

- Some treatment programs and counselors discourage the use of any prescription medication to treat alcohol problems because they believe that true recovery also requires abstinence from any drugs to relieve addiction.
- Primary care physicians – who are perhaps in the best position to mainstream the use of medications as one active ingredient of treatment – under-diagnose alcohol problems, in part because they often are unaware of the availability of effective medications to treat alcohol problems.
- While medication adherence is a universal problem in pharmacological interventions for any disease, patients with alcoholism may be even less inclined than patients with other chronic diseases to take a drug, particularly one that interferes with a substance that gives them pleasure.

Use of medication also can be vital for patients who have co-occurring mental health disorders. Most patients, for example, suffer from what is known as secondary depression when they stop drinking. This usually disappears after several weeks. However, if it doesn't, and primary depression is diagnosed – which means it probably preceded alcohol dependence – psychotropic drugs in addition to alcohol-specific treatment may be necessary to prevent relapse.

Patient motivation plays a critical role in effective alcohol treatment.

How well a patient adheres to a specific course of treatment, such as taking medicine as prescribed, is an issue throughout all of medical practice. The resistance to alcohol treatment that is typical of many

patients makes adherence even more problematic. Extensive study of patient motivation has led to the identification of five "stages of change." **Strong patient motivation**, reflected by a "higher" stage of change, is an important factor in treatment adherence. For example, a patient in precontemplation, a "lower" stage of change, may not be sufficiently motivated to complete the counseling phase of treatment after detoxification.

Many patients enter alcohol treatment because someone else thinks they need it, not because they want it. Their motivation is external, rather than internal, and while pressure from a spouse, employer or the criminal justice system can be helpful in completing a treatment program, patients who seek treatment because they believe they need it are likely to have better outcomes over the long term. This helps explain why some people who are severely dependent on alcohol eventually are able to maintain sobriety more easily than other problem drinkers: as a result of experiencing more severe problems, they may be more motivated to change their behavior just as some patients who suffer serious heart attacks are more motivated to make the necessary changes in diet, exercise routine and stress management.

Project MATCH demonstrated how **motivational enhancement therapy** can be successful in treating patients with alcoholism. Motivational interviewing, which attempts to move patients to higher stages of change, can be an effective ingredient of brief interventions as well. Primary care and emergency room physicians can conduct motivational interviews in situations when a patient's alcohol problems, such as *Catherine's* car crash, can be addressed immediately and objectively. By avoiding confrontation or the use of diagnostic labels, physicians as well as therapists and counselors can explore the pros and cons of drinking that have caused a health problem or injury. This empathic process allows patients to conclude for themselves that behavior change is desirable, thus stimulating the necessary internal motivation.

STAGES OF CHANGE IN ALCOHOL TREATMENT

Precontemplation: Individual does not perceive drinking to be a problem.

Contemplation: Individual begins to consider changing drinking because of perception that it is causing problems in a variety of areas.

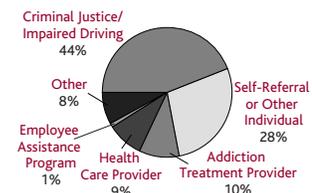
Preparation: Individual increases commitment to change and plans action.

Action: Individual takes positive steps to change drinking behavior, with or without formal treatment.

Maintenance: Individual tries to avoid drinking, with or without assistance.

Source: DiClemente, Bellino & Nevins.

How Many People Being Referred to Alcohol Treatment



Source: SAMHSA2002

Contracting with patients to reward good behavior and to punish bad behavior facilitates treatment adherence.

Contracting with patients, also called contingency management or behavior contracting, is another ingredient of effective addiction treatment that directly relates to patient motivation. Recent studies have shown that when used in conjunction with an appropriate treatment plan that involves other pharmacological and proven professional interventions, it helps keep patients in treatment and prevent relapse by rewarding good behavior and punishing bad.

Clinicians implement contingency management by drawing up contracts with patients. The contracts specify desired behavior or behaviors that can be objectively measured (such as abstinence, taking medications as prescribed and attending therapy sessions) and spell out the consequences of the patient's success or failure in achieving these goals. The consequences must be meaningful to the patient. Vouchers that can be redeemed for money, or negative reports to a parole officer or employer are examples of the kinds of incentives, both positive and negative, that have worked with patients. The contracts remain in effect for a designated length of time and state how often patients will be monitored.

Current testing techniques cannot detect drinking on a patient's breath or in their bloodstream earlier than 12 hours prior to their administration. This makes behavior contracting less practical for measuring continuing abstinence from alcohol than from illicit drugs (which remain in patients' systems for much longer periods of time). But many patients in treatment are addicted to both alcohol and other drugs, and behavior contracting has been shown to increase medication adherence and treatment attendance among all patients. More studies are needed to determine what kinds of incentives work best and how long the contracts should last but current research suggests that certain populations, including high-risk adolescents and people who have not sought treatment, may be especially responsive to behavior contracting.

Social skills training helps prevent relapse.

When used as an adjunct to a psychosocial intervention, **social skills training** – which forms the basis for **cognitive behavioral therapy** – improves outcomes. Originally adapted 25 years ago for use as a relapse prevention strategy, social skills training has evolved to comprise a number of approaches that differ in duration, content and delivery but share two core principles:

- People with alcohol problems mistakenly believe that drinking helps them relieve stress and this belief leads to excessive drinking in stressful situations.
- People with alcohol problems can be taught to recognize stressful situations in which their drinking has been a problem in the past, and equipped with tailor-made skills to help them cope with these situations.

Social skills training begins with a therapist exploring and assessing a patient's particular vulnerabilities. Do depression, anxiety, frustration or anger stimulate a patient's drinking? Does a patient have difficulty with personal relationships? Do specific situations trigger excessive drinking? Once these questions have been answered, patients like *Robert* and *Catherine* can be taught how to cope with specific situations (such as refusing a drink during a business lunch or when dining out with friends) through direct instruction, modeling, rehearsal, role-playing and feedback. The therapist also assists a patient in improving his or her sober relationships with family members and at work. This can reduce stress at the same time that it builds social supports for abstinence.

The strength of the bond that patients establish with their therapists or counselors positively affects treatment.

Research suggests that therapists and counselors can be a powerful motivating influence for patients in alcohol treatment. Though therapists and counselors differ considerably in the extent to which they are able to help patients, their role is often underestimated because of the perception that drinking less or abstinence is simply a matter of willpower. A literature review suggests the most effective therapists and counselors rely on empathy, rather than confrontation, to establish a **strong bond** with patients, one that is based on "genuineness," "concreteness" and "respect."

Alcohol dependent patients who stay in treatment longer do better.

A therapist or counselor who establishes a strong bond with a patient can help keep him or her in treatment longer, and how long a patient stays in treatment (particularly for those with greater levels of dependence) matters more in most cases than if a patient is treated in an inpatient or outpatient setting. While patients can be treated effectively in both settings, research and the realities of America's health care system under managed care – which has contained costs by reducing access to more expensive inpatient treatment for alcoholism – dictate that **longer duration** of treatment rather than setting should be the determining factor in allocation of scarce economic resources. Studies indicate that outpatient treatment lasting less than 90 days results in poorer outcomes for patients.

There are two schools of thought to explain why patients who stay longer in treatment do better. They reflect a "chicken or egg?" debate with regard to the role of motivation and while these schools are not mutually exclusive, they do have very different implications for effective practice. The first suggests that it takes time to acquire the motivation, skills, attitudes, knowledge and support necessary for patients to achieve their goals, and that these qualities strengthen over time; the second suggests that patients who stay in treatment longer are more motivated and have a greater commitment to do whatever it takes to stop drinking.

If the first school of thought is correct and treatment produces change over time, then retaining patients in treatment and providing them with more services should be a top priority. However, if motivation and commitment are prerequisites, then more streamlined and less intensive approaches, such as **motivational enhancement therapy** to treatment may be adequate.

Widespread benefit limitations on private health insurance coverage for alcohol treatment make the discussion of longer duration somewhat academic. According to an **analysis** of employment-based health insurance plans conducted by Ensuring Solutions to Alcohol Problems, if *Robert* or *Catherine* lived in one of 22 states that don't mandate ample coverage for the treatment of alcoholism, they likely would have to pay out of their own pockets to remain in treatment for as long as the panel of experts recommended, or rely on the availability of publicly-funded services.

Depending on where they live, then, *Robert's* and *Catherine's* only option for **continuing care** may be participation in a support group.

Active participation in a support group can contribute to long-term recovery.

Project MATCH and other studies in the 1990s definitively proved that AA can be an active ingredient of treatment both during a professional intervention and afterward, depending on the patient's type of therapy. Patients who joined the AA fellowship or who had an AA sponsor after receiving **twelve-step facilitation therapy** had better abstinence records than those who received an intervention but did not continue their AA participation upon completion. Other research indicates AA participation may be less effective for patients who receive **cognitive behavior therapy** because the programs have different goals that may confuse patients.

What researchers still don't understand, however, are the precise mechanisms of AA participation. While AA affiliation is associated with self-efficacy, motivation and coping efforts, all significant predictors of good outcome following a professional intervention, some studies have shown that patients who adopt more of the fellowship's basic tenets – such as acknowledging that alcoholism is a disease, admission of their powerlessness over alcohol and working the twelve steps of the program – relapse at the same rates as patients who adopt very few. This suggests that the active ingredient may be less about AA per se than continuing **participation in support groups** that promote a lifestyle inconsistent with the problematic use of alcohol and other drugs.

The Community Reinforcement Approach combines several active ingredients of effective alcohol treatment.

Many of the active ingredients of alcohol treatment that have been described here already have been combined in the Community Reinforcement Approach (CRA) to treat alcoholism. CRA seeks to eliminate positive reinforcement for drinking at the same time that it builds support for sobriety. By engaging patients in alcohol-free recreational and social activities, including **participation in support groups**, CRA helps overcome the isolation that drinking causes for many people. Therapists also use **social skills training** to help patients analyze their drinking patterns and learn how to avoid high-risk situations.

In addition, studies have shown that adding the drug disulfiram to CRA can make it more effective. Further, active involvement of a significant other allows **contracting with patients** to ensure that they are monitored to take their **medication** properly.

Evaluations of CRA indicate that enthusiastic, optimistic therapists who provide positive feedback to their patients increase the effectiveness of the approach. They also suggest that with minimal delay between a request for an appointment and the actual scheduling of a visit with a therapist, it can offer a “jump-start approach” that capitalizes on a patient’s readiness to initiate treatment. Both of these factors – **a strong bond with a therapist or counselor** and **strong patient motivation** – offer a striking parallel between effective treatment for alcohol problems and that for any chronic disease with a significant behavioral component: how well a patient does depends, to a large extent, on the quality of their treatment and how well they adhere to it.

Current practice and evaluation of alcohol treatment have undermined perceptions of its effectiveness.

Although the Community Reinforcement Approach was first developed more than 25 years ago, few treatment professionals are familiar with it. This illustrates the gap between research and practice that plagues much of health care. According to Institute of Medicine, not only does it take an average of 17 years for new knowledge generated by randomized controlled trials to be incorporated into practice but the nation’s “health care routinely fails to deliver its potential benefits.”

While some of the active ingredients that have been described here are widely used in practice, many are not. Much of this gap may be attributed to the fact that the nation’s health care system uses the acute care model to treat alcohol problems, but the alcohol treatment community also has resisted some aspects of the chronic disease model, including the use of medications. Many in this community believe that medication can be a crutch for people attempting to recover from alcoholism; they argue that patients must rely strictly on their own behavioral changes to become completely drug-free.

However, it's important to remember that evaluations of alcohol treatment also are based on the acute care model. This has significantly undermined confidence in its effectiveness and led to restrictions on private health insurance coverage for alcohol treatment.

Treatment success for asthma, diabetes and hypertension is evaluated by how well a patient is doing *during* treatment. If a patient is being treated for an advanced case of hypertension, nobody expects his or her high blood pressure to go away permanently. Treatment is considered a success if the patient's condition improves while he or she is being treated. If the patient's symptoms return in the absence of treatment, this signals the need for additional treatment.

Treatment success for alcohol problems, on the other hand, is usually evaluated by a much higher standard, and often measured by a single question, 6-12 months *after* treatment ends: has the patient remained continuously abstinent compared to patients who received no treatment at all? Of course, abstinence rates among patients during treatment are much higher than those among patients whose treatment ended at least six months earlier, just as hypertensive patients on medication have lower blood pressures than patients who have terminated medication.

Measuring treatment success by abstinence alone also ignores the many benefits that the individual, the family, employers and the community all can experience when significant reductions in alcohol consumption are achieved for any length of time.

Nevertheless, despite the differences in evaluation criteria, patients with alcohol problems do not relapse any more frequently than those with other **chronic illnesses**. This suggests that if alcohol problems were both treated and evaluated according to the chronic disease model, using an appropriate mix of active ingredients described here, outcomes would improve dramatically. Only then will the perception of alcohol treatment finally catch up with the reality of its effectiveness, and make possible the broad-based treatment system envisioned by the Institute of Medicine more than a decade ago.

How Widely Used Are the Active Ingredients of Effective Alcohol Treatment?

ACTIVE INGREDIENT	WIDELY USED	NOT WIDELY USED
Early detection, including screening & brief interventions (for non-dependent problem drinkers)		X
Comprehensive assessment and individualized treatment plan		X
Care management		X
Individually delivered, proven professional interventions		X <i>(most professional interventions are delivered in group settings)</i>
Contracting with patients		X
Social skills training	X	
Medications		X
Specialized services for medical, psychiatric, employment or family problems		X
Continuing care		X
Longer duration (for alcohol dependent patients)		X
Participation in support groups	X	

Note: Strong bond with therapist or counselor and strong patient motivation and are not included in this chart because they depend on personal factors that vary among patients

Patient Profile: Robert

Robert, 56, complains of not feeling well and makes an appointment to see his doctor. When his doctor smells alcohol on his breath at 2 PM, he includes in the blood work that he orders a test to evaluate Robert's blood alcohol level (BAL).

Robert is diagnosed with diabetes. When the laboratory test results also indicate that Robert had a BAL of .16 (twice the legal limit for intoxication in many states) and that his liver enzymes are elevated, his doctor questions him about his drinking. Robert admits that he has been drinking daily since adolescence and that he and his wife fight about it – and many other things – constantly. His employer also has expressed concern about his job performance and has told him that he needs to “get it together” if Robert wants to keep working there. Robert says that he has tried to cut back on his drinking on his own, but failed. He says that he has a very stressful job and when he doesn't have a drink by lunchtime he feels “shaky and anxious.” He has not had a period without drinking in several years.

Robert's doctor prescribes treatment for his diabetes and provides him with a referral to an alcohol treatment facility. Robert schedules an appointment and decides that he won't have anything to drink 24 hours before arriving. This is not his usual pattern and during his assessment, he begins to experience signs of withdrawal. As a result, he is immediately transferred to inpatient facility for medically managed detoxification.

Within two days, Robert's withdrawal symptoms have substantially subsided. He is transferred to a less intensive detoxification unit, categorized as medically monitored rather than managed. He remains there for an additional day before being admitted to the hospital's intensive outpatient treatment program.

During treatment, Robert remains abstinent, cooperates with treatment, and states that he really is scared about the diabetes and about having to be detoxed. He has learned that alcohol can seriously interfere with control of his diabetes, which gives him another reason to remain sober. He is going to AA and has a sponsor. Nevertheless, Robert still craves alcohol and tells his counselor that he is worried about his ability to stay sober.

The treatment program's medical director evaluates Robert and after a consultation with Robert's primary care physician, he prescribes naltrexone (brand name: Revia) to help him continue his abstinence by reducing his craving and potential for his return to drinking (relapse). He is regularly monitored for any drug interactions with his diabetes medicines and for blood glucose levels. His

diabetes remains under control. His elevated liver enzymes return to normal with abstinence and adherence with his prescribed treatment regimen.

Robert's wife attends his treatment program's family education sessions and begins going to Al-Anon meetings, which provide group support for family members of people with alcohol problems. Robert completes his treatment program's continuing care program. His treatment counselor refers Robert and his wife for continued couples counseling.

Robert's Alcohol Service Need Over Nine Months:

- Two days of medically managed inpatient detoxification
- One day of medically monitored inpatient detoxification
- Five weeks of intensive outpatient substance abuse treatment five times per week
- Detoxification medications and naltrexone for 12 weeks
- Eight months of continuing care/relapse prevention counseling
- Couples counseling

Resources:

- Center for Substance Abuse Treatment. *Naltrexone and Alcoholism Treatment*. O'Malley, S., panel chair. 1999. Treatment Improvement Protocol Series, No. 28. DHHS Pub. No. (SMA) 98-3206. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Center for Substance Abuse Treatment. 1997. *A Guide to Substance Abuse Services for Primary Care Clinicians*. Eleanor Sullivan and Michael Fleming, panel chairs. Treatment Improvement Protocol Series, No. 24. DHHS Pub. No. (SMA) 97-3139. Rockville, MD: Substance Abuse and Mental Health Services Administration, 1997.
- Finney, J. and Moos, R. 1998. *What Works in Treatment: Effect of Setting, Duration and Amount*. In: Graham, A., Schultz, T. eds. Principles of Addiction Medicine. 2d ed. American Society of Addiction Medicine, pp. 345-352.
- Mee-Lee, D., ed. 2001. *American Society of Addiction Medicine Patient Placement Criteria for the Treatment of Substance-Related Disorders*. 2d ed.-Revised. Chevy Chase, Maryland: American Society of Addiction Medicine.

Reviewers:

- Herman Diesenhaus, PhD
Norman Hoffmann, PhD
Robert Mathieu, MD
David Mee-Lee, MD
Gerald Shulman, MA, MAC, FACATA
Cassandra Vieten, PhD

Patient Profile: Catherine

Catherine, a 52-year-old real estate broker, fractures her left tibia in a car crash after having several glasses of wine with dinner. She is taken to a local emergency room where doctors treat her for injuries and administer a blood alcohol level (BAL) test that they are required to do whenever they smell alcohol on the breath of a trauma victim. An hour after the accident, her BAL is .13, well above the legal limit for intoxication while driving. The police already have issued Catherine a citation for driving under the influence.

This is not the first time that Catherine has been cited. Three years earlier, Catherine attended alcohol education classes in order to have the charges reduced to reckless driving. Nevertheless, she continued to drink four or five days each week, denying that she had a problem.

When Catherine consults her attorney about the latest incident, he advises her to seek alcohol treatment and provides her with several referrals. She makes an appointment at a local facility, accompanied by her husband. During assessment, in which she is diagnosed as alcohol dependent, she makes it clear that she is there for legal reasons only, not because she thinks she has a serious problem. Her husband, however, expresses concern about an increase in the number of alcohol-related problems Catherine has been experiencing and supports the idea of treatment for his wife.

Catherine begins an outpatient treatment program. Initially, she participates very little and resists attending AA meetings. She remains abstinent, however, because she knows that her treatment is being monitored as a result of her DUI conviction.

Gradually, over time, Catherine becomes more engaged with her treatment and finds an AA group where she feels comfortable. In the meantime, her husband has begun attending the program's family education sessions.

Catherine completes her course of outpatient treatment and attends continuing care sessions as recommended. She says she plans to stay sober.

Catherine's Alcohol Service Needs Over Eight Months:

- Twenty-five outpatient substance abuse treatment visits over four months
- Three family education sessions
- Three family counseling sessions
- Twenty-four continuing care sessions over four months

Resources:

- Center for Substance Abuse Treatment. 1995. *Alcohol and Other Drug Screening of Hospitalized Trauma Patients*. Peter O. Rostenberg, panel chair. Treatment Improvement Protocol Series, No. 16. DHHS Pub. No. (SMA) 95-3041. Rockville, MD: Substance Abuse and Mental Health Services Administration..
- Center for Substance Abuse Treatment. 1997. *A Guide to Substance Abuse Services for Primary Care Clinicians*. Eleanor Sullivan and Michael Fleming, panel chairs. Treatment Improvement Protocol Series, No. 24. DHHS Pub. No. (SMA) 97-3139. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Mee-Lee, D., ed. *American Society of Addiction Medicine Patient Placement Criteria for the Treatment of Substance-Related Disorders*. 2d ed.-Revised. Chevy Chase, Maryland: American Society of Addiction Medicine, 2001.

Reviewers:

- Norman Hoffmann, PhD
Robert Mathieu, MD
David Mee-Lee, MD
Gerald Shulman, MA, MAC, FACATA

Expert Consultant: Herman I. Diefenhaus, PhD

Herman I. Diefenhaus, PhD is currently a senior evaluation specialist at the Substance Abuse and Mental Health Services Administration, a division of the U.S. Department of Health and Human Services. Prior to rejoining the federal government in this role, Dr. Diefenhaus served as associate director for the Institute of Medicine's congressionally-mandated Study on Treatment and Rehabilitation for Alcohol Abuse and Alcoholism, where he helped edit and write the widely influential *Broadening the Base of Treatment for Alcohol Problems*. Dr. Diefenhaus held responsibility for the report's sections on the financing and organization of treatment service, including the impact of managed care.

Dr. Diefenhaus's work has appeared in many scientific publications and he is the coauthor of the text, *Research Methods in Psychopathology*. Dr. Diefenhaus and a colleague conducted one of the first cost-effectiveness studies and policy analyses comparing hospital-based and residential treatment of persons with alcohol and drug problems for the Colorado legislature. The study served as the basis for Colorado's pioneering efforts at moving from a state hospital-based system of rehabilitation to a community-based system of care for persons with alcohol and drug disorders.

A graduate of the University of Illinois, Dr. Diefenhaus received his PhD from University of Chicago where he studied personality measurement and clinical psychology. He completed his post-doctoral training program in community psychology and community mental health at University of Illinois Medical Center.

Special Thanks

Special thanks to Shirley A. Beckett, NCACII at NAADAC, the Association for Addiction Professionals; Pat Ford-Roegner, MSW, RN, FAAN at NAADAC, the Association for Addiction Professionals; Eric Goplerud, PhD at Ensuring Solutions to Alcohol Problems; Daniel K. Hall-Flavin MD at the Mayo Clinic and Mayo Medical School; Reid K. Hester, PhD at Behavior Therapy Associates LLP; A. Thomas McLellan, PhD at the Treatment Research Institute; William Cope Moyers at the Hazelden Foundation; and Patricia A. Taylor at Ensuring Solutions to Alcohol Problems for their thoughtful review of this material.

The Active Ingredients of Alcohol Treatment was researched and written by Ensuring Solutions to Alcohol Problems Research Scientist Jeffrey Hon.

June 2003

2021 K St. NW
Suite 800
Washington, DC 20006
Phone: 202.296.6922
Fax: 202.296.0025
info@ensuringsolutions.org
www.ensuringsolutions.org



Ensuring Solutions to Alcohol Problems (Ensuring Solutions) at the George Washington University Medical Center in Washington, DC, seeks to increase access to treatment for individuals with alcohol problems. Working with policymakers, 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.

Suggested Reading

- Finney, J.W. and Monahan, S.C. 1996. The Cost-Effectiveness of Treatment for Alcoholism: A Second Approximation. *Journal of Studies on Alcohol*. 229-243.
- Institute of Medicine. 2000. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press.
- Institute of Medicine. 1990. *Broadening the Base of Treatment for Alcohol Problems: Report of a Study by a Committee of the Institute of Medicine, Division of Mental Health and Behavioral Medicine*. Washington, DC: National Academy Press.
- Kranzler, H.R. and Van Kirk, J. 2001. Efficacy of Naltrexone and Acamprosate for Alcoholism Treatment: A Meta-Analysis. *Alcoholism: Clinical and Experimental Research*. 25: 1335-1341.
- McCready, B. 2000. Alcohol Use Disorders and the Division 12 Task Force of the American Psychological Association. *Psychology of Addictive Behaviors*. 14:267-276.
- Miller, W.R. and Wilbourne, P.L. 2002. Mesa Grande: A Methodological Analysis of Clinical Trials of Treatments for Alcohol Use Disorders. *Addiction*. 97:265-277.
- Ouimette, P.C., Finney, J.W. and Moos, R.H. 1997. Twelve-Step and Cognitive-Behavioral Treatment for Substance Abuse: A Comparison of Treatment Effectiveness. *Journal of Consulting & Clinical Psychology*. 65: 230-240.
- Project MATCH Research Group. 1997. Matching Alcoholism Treatments to Client Heterogeneity: Project MATCH Posttreatment Drinking Outcomes. *Journal of Studies on Alcohol*.
- Streeton, C. and Whelan, G. 2001. Naltrexone, A Relapse Prevention Maintenance Treatment of Alcohol Dependence: A Meta-Analysis of Randomized Controlled Trials. *Alcohol & Alcoholism*. 36:544-552.

Sources

- Babor, T. and Higgins-Biddle, J. 2001. *Brief Intervention for Hazardous and Harmful Drinking: A Manual for Use in Primary Care*. World Health Organization.
- DiClemente, C.C., Bellino, L.E. and Neavins, T.M. 1999. Motivation for Change and Alcoholism Treatment. National Institute on Alcohol Abuse and Alcoholism. *Alcohol Research and Health*. 23:2.
- Garnick, D.W., Horgan, C.M., et al. 2002. Managed Care Plans' Requirements for Screening for Alcohol, Drug and Mental Health Problems in Primary Care. *American Journal of Managed Care*. 8 (10): 879-888.
- Higgins, S.T. and Petry, N.M. 1999. Contingency Management: Incentives For Sobriety. National Institute on Alcohol Abuse and Alcoholism. *Alcohol Research and Health*. 23:2.

- Humphreys, K. 1999. Professional Interventions That Facilitate 12-Step Self-Help Group Involvement. National Institute on Alcohol Abuse and Alcoholism. *Alcohol Research and Health*. 23:2.
- Institute of Medicine. 2000. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press.
- Institute of Medicine. 1990. *Broadening the Base of Treatment for Alcohol Problems: Report of a Study by a Committee of the Institute of Medicine, Division of Mental Health and Behavioral Medicine*. Washington, DC: National Academy Press.
- Johnson, B., Ait-Daoud, N., Bowden C., et al. 2003. Oral Topiramate for Treatment of Alcohol Dependence: A Randomised Controlled Trial. *Lancet*. 361(9370):1677.
- Johnson, B.A., Roache, J.D. et al. 2000. Ondansetron for Reduction of Drinking Among Biologically Predisposed Alcoholic Patients. *Journal of the American Medical Association*. 284 (8): 963-971.
- Kranzler, H.R. and Van Kirk, J. 2001. Efficacy of Naltrexone and Acamprosate for Alcoholism Treatment: A Meta-Analysis. *Alcoholism: Clinical and Experimental Research*. 25 (9): 1335-1341.
- Kranzler, H.R. 2000. Medications for Alcohol Dependence – New Vistas. *Journal of the American Medical Association*. 284 (8): 1016-1017.
- Longabaugh, R. and Morgenstern, J. 1999. Cognitive-Behavioral Coping-Skills Therapy for Alcohol Dependence. National Institute on Alcohol Abuse and Alcoholism. *Alcohol Research and Health*. 23:2.
- Mark, T.L., Dilonardo, J.D., Chalk, M. and Coffey, R.M. 2002. Trends in Inpatient Detoxification Services, 1992-1997. *Journal of Substance Abuse Treatment*. 23(4):253-260.
- McCrary, B.S. 2000. Alcohol Use Disorders and the Division 12 Task Force of the American Psychological Association. *Psychology of Addictive Behaviors*. 14 (3): 267-276.
- McLellan, TA. 2002. Is Addiction an Illness—Can It Be Treated? In Substance Abuse *Journal of the Association for Medical Education and Research in Substance Abuse*. 23 (3) (supplement): 78-88.
- McLellan, A.T., Lewis, D.C., O'Brien, C.P. and Kleber, H.D. 2000. Drug Dependence, a Chronic Medical Illness: Implications for Treatment, Insurance, and Outcomes Evaluation. *Journal of the American Medical Association*. 13:1689-1695.
- Mertens, J.R. and Weisner, C. 2002. Predictors of Alcohol and Drug Treatment Seeking, Initiation and Retention in an HMO. *Alcoholism: Clinical and Experimental Research*. 26 (3): 417-419.
- Miller, W.R., Wilbourne, P.D., and Hetema, J.E. 2003. What Works? A Summary of Alcohol Treatment Outcome Research. In *Handbook of Alcoholism Treatment Approaches: Effective Alternatives* (3rd ed.) eds. R.K. Hester and W.R. Miller. Boston, MA: Allyn and Bacon. pp. 13-63.
- Miller, W.R. and Wilbourne, P.L. 2002. Mesa Grande: A Methodological Analysis of Clinical Trials of Treatments for Alcohol Use Disorders. *Addiction*. 97:265-277.

- Miller, W.R., and Meyers, R.J. 1999. The Community-Reinforcement Approach. National Institute on Alcohol Abuse and Alcoholism. *Alcohol Research and Health*. 23:2.
- National Institute on Alcohol Abuse and Alcoholism. 2003. List of Alcohol Interventions for Substance Abuse and Mental Health Services Administration Science-To-Service Collaboration (personal communication).
- National Institute on Alcohol Abuse and Alcoholism. 2000. *Tenth Special Report to U.S. Congress on Alcohol and Health*. p. 445. Washington, DC.
- National Institute on Alcohol Abuse and Alcoholism. 2000. Research Refines Alcoholism Treatment Options. *Alcohol Research and Health*. 24:1.
- National Institute on Alcohol Abuse and Alcoholism. 1998. *Drinking in the United States: Main Findings from the 1992 National Longitudinal Alcohol Epidemiologic Survey*. Washington, DC: Department of Health and Human Services, Public Health Service, National Institutes of Health.
- National Institute on Drug Abuse. 1999. *Principles of Drug Addiction Treatment: A Research-Based Guide*. Washington, DC.
- Project MATCH Research Group. 1997. Matching Alcoholism Treatments to Client Heterogeneity: Project MATCH Post-treatment Drinking Outcomes. *Journal of Studies on Alcohol*. 58: 7-29.
- Substance Abuse and Mental Health Services Administration. 2003. Treatment Completion in the Treatment Episode Data Set. The DASIS Report. Available from the World Wide Web: <http://www.samhsa.gov/oas/2k3/TXcompleters/TXcompleters.htm>
- Substance Abuse and Mental Health Services Administration. 2002. Health Insurance Status of Admissions for Substance Abuse Treatment:1999.The DASIS Report. Available from the World Wide Web: <http://www.samhsa.gov/oas/2k2/insuranceTX/insuranceTX.htm>
- Substance Abuse and Mental Health Services Administration. 2002. *National Household Survey on Drug Abuse*. Washington, DC.
- Substance Abuse and Mental Health Services Administration. 2002. Treatment Episodes Data Set (TEDS) 1992-2000. Tables 3.1a, 3.3, 3.4, 3.5. Available from the World Wide Web: http://www.dasis.samhsa.gov/teds00/TEDS_2K_Tables.htm
- Substance Abuse and Mental Health Services Administration. 2001. *National Household Survey on Drug Abuse*. Washington, DC.
- Vaillant, G.E. 1995. *The Natural History of Alcoholism Revisited*. Cambridge: Harvard University Press.