CENTRE FOR DEADDICTION RESEARCH, TRAINING & SERVICES

(C-DARTS)

ALCOHOL BASIC INFORMATION

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Introduction

No substance, legal or illegal, has a more paradoxical history than alcohol. It is, undeniably, one of the most widely and safely used mood altering substance, part of our society and cultural activities. It is also a potent and dangerous drug of abuse -- both from a psychological and physiological viewpoint. Alcohol works to reduce social inhibitions and to produce pleasure and a sense of well-being. It also has some rather impressive positive medical effects. However, whether it is consumed because of these psychological or medical effects or because it is a "product" associated with youthfulness, sexuality, and positive social interactions is debated. Every effort to ban its use, from religious campaigns to constitutional amendments, has failed. The right to drink is as basic to modern world values as the Bill of Rights in democracies.

What Is Alcohol Dependence or what is commonly called Alcoholism?

Overview of the Symptoms of Alcoholism

Alcohol dependence or alcohol addiction is a primary and chronic disease that is progressive and often fatal. Dependence on alcohol is not a symptom of another physical or mental condition. It is a disease in itself, like cancer or heart disease, with a very recognizable set of symptoms that are shared by people with alcoholism.

Research has shown that genetic factors play a strong role in whether a person becomes an alcoholic, accounting for 40-60% of the risk. In fact, family transmission of alcoholism has been established. Individuals who have alcoholic relatives are at 3 to 5 times greater risk than the general population. The presence of alcoholism in one or both biologic parents is more important than the presence of alcoholism in one or both adoptive parents. However, most children of alcoholics do not become alcoholics themselves, and some children from families where alcohol is not a problem develop alcoholism when they grow up. Identical twins adopted into households with an alcoholic step father do not show more alcohol dependence than the general population, while children with close biological relatives who are alcoholic adopted into a never drinking, even religiously opposed family can readily develop alcohol

problems themselves if they drink. Thus, there are many factors-- psychological, social, environmental, genetics and cultural -- that determine whether a person develops alcohol dependence.

Progressive diseases like alcoholism and cancer persist over time, and people with alcoholism experience physical, emotional, and other changes in their lives and relationships that tend to worsen as drinking continues if they do not get treatment specifically targeted to the disease of alcoholism. Left untreated, alcoholism causes premature death through overdose and through damage to the brain, liver, heart, and many other organs. Excessive alcohol consumption is a leading contributor to suicide, motor vehicle crashes, violence, and other traumatic events. People with untreated alcoholism often lose their jobs, their families, and other relationships and freedoms that were once important to them. Alcohol problems can often be prevented by early identification and brief intervention. The weak link in identifying problems early is the skill and competencies necessary for such an assessment and the experience to confidently move to more specific questions and suggestions for change. Completing this program will help the physician update his or her skill set and master the core issues in moderate alcohol consumption, alcohol abuse, problem and dependence detection and intervention.

Alcohol Dependence includes a number of clinical symptoms and signs as described in the DSM-IV:

- Development of tolerance of the effects of alcohol (the individual requires more alcohol to achieve the desired effects)

- Experience of withdrawal symptoms (e.g., tremors, rapid heartbeat, delirium) when alcohol is not available.

- Impaired control over drinking

- Preoccupation with obtaining or consuming alcohol

- Continued use of alcohol despite adverse consequences

- Distortions in thinking, most notably denial

Alcohol dependent individuals often experience a severe withdrawal syndrome when they abruptly discontinue or even cutting down on drinking. The symptoms may include sweating,

rapid heartbeat, hypertension, tremors, anorexia, insomnia, agitation, anxiety, nausea and vomiting. Tremors of the hands are the earliest symptom of alcohol withdrawal. Hallucinations, seizures, and Delirium Tremons (DTs) are the most severe of possible symptoms. Hallucinosis, when it occurs, occurs 1-2 days after decreasing or abstaining from alcohol. While the effects of DTs can be life threatening, all other symptoms, with or without treatment, usually resolve several hours or days after appearance**.** Some alcoholics have symptoms of irritability, emotional lability, insomnia, and anxiety that persist for weeks to months after alcohol withdrawal. The symptoms may be due to the residual effects of alcohol toxicity on the central nervous system. Members of Alcoholics Anonymous refer to it as a 'dry drunk'. This is a protracted withdrawal syndrome.

Long-term heavy drinking can result in the development of tolerance, which is the body's adaptation to the presence of alcohol. As tolerance develops, the drinker requires increasing amounts of alcohol to feel the same effect. In our society, people are often admired for their ability to "hold their drinks." But the fact is, tolerance may be an early warning sign that a physical dependence on alcohol is developing.

Physicians need to understand what the natural history of alcohol dependence looks like. Such a background enables the physician to confront and intervene earlier in the course of the illness than relying on toxic liver markers. Verifying the facts that show a person is alcohol dependent and confronting the impaired individual with those facts is what is meant by an office intervention. During the late stages of alcohol dependence reverse-tolerance occurs, meaning the individual becomes intoxicated quicker with less alcohol.

While tolerance and withdrawal are still the first two DSM-IV criteria, only three of the seven symptoms are required to make a diagnosis of alcoholism. Instead, professionals sometimes focus on the highly recognizable behaviors associated with dependence on alcohol: impaired control over drinking, preoccupation with alcohol, and use of alcohol despite adverse consequences.

Impaired control over drinking means that a person is consistently unable to limit the number of occasions when alcohol is used or the amount of alcohol ingested on those occasions. Often, because of the damage alcohol causes in their lives, people who are alcohol dependent will express a strong and persistent desire to cut down or stop drinking, and they may be able to do so—sometimes for a matter of weeks, a month, or even a year or more. However, because alcohol dependence is a progressive disease, when they begin drinking again, or relapse, they typically resume at the same levels of drinking, with the same or worse adverse consequences.

Preoccupation with alcohol means that individuals with alcoholism noticeably shift their priorities until obtaining an adequate supply of alcohol and drinking alcohol becomes a central focus in their lives. Over time, the energies of individuals with alcoholism are diverted from people, places, and things that were once more important to them.

Another highly noticeable feature of the preoccupation with alcohol may be the large amount of time that drinking consumes. Thinking about alcohol, obtaining alcohol, drinking alcohol,

and recovering from the effects of alcohol take up more and more of the individual's time. Hobbies and other activities once enjoyed are abandoned one by one, and the only pleasure seems to come from drinking. Although, people who care about alcoholics, and even alcoholics themselves, may wonder what pleasure could be derived from a behavior that has become so compulsive and that causes so many problems.

Continued drinking despite adverse consequences means that individuals with alcoholism are unable to stop drinking even when they begin to experience health problems, family problems, psychological problems, occupational problems, interpersonal problems, legal problems, financial problems, or even spiritual problems and even when they begin to suspect that the problems are related to drinking.

Alcohol Abuse, which is a separate diagnosis from alcohol dependence, is defined by the DSM-IV as a maladaptive pattern of use with one or more of the following criteria over a 1-year period:

- repeated alcohol consumption that results in inability to fulfill obligations at home, school or work
- repeated alcohol consumption when it could be physically dangerous (such as driving a car)
- repeated alcohol related legal problems such as arrests
- continued drinking despite interpersonal or social problems that are caused or made worse by drinking.

Alcohol abuse is the amenable to brief intervention. Brief intervention usually includes giving patients information about problems associated with drinking and advising them to cut down on their drinking.

Denial as a defense mechanism of alcoholics:

Denial is a characteristic distortion in thinking experienced by people with alcoholism. For decades, people who treat alcoholics, and recovering alcoholics themselves, have puzzled over why alcoholics continue to drink when the link between alcohol and the losses they suffer is so clear. Denial is an integral part of the disease of alcoholism and a major obstacle to recovery. Although the term "denial" is not specifically used in the wording of the diagnostic criteria, it underlies the primary symptom described as drinking despite adverse consequences.

Because alcoholism is a chronic disease, like cancer or diabetes, another symptom that is increasingly being recognized and treated is **relapse**. Although alcoholism is a treatable

disease, as yet no cure has been found. This means that even if alcoholics have been sober for a long time and have regained their health and reclaimed other important aspects of their lives, they may experience a relapse that will require further treatment.

Moderate drinking is defined by the Dietary Guidelines for Americans as no more than 1 drink a day for women and no more than 2 drinks a day for men. (One drink is 3 IUs of alcohol; a standard drink is 354ml of beer, 44ml of hard liquor, 147ml of wine; Not more than 21 IUs in a week, no more than 6 IUs at a time, and at least two dry days in a week.)

Just because someone has a problem with drinking or consumes large quantities of alcohol does not necessarily mean that he or she is an alcoholic. These are "judgments," not diagnosis. In making a diagnosis, health professionals rely not only on information about the quantity and frequency of drinking, but on the effects of alcohol on a person's behavior and functioning.

Blood Alcohol Concentration (BAC)

One of the roles of the cerebellum is in controlling movement. It may also play a role in the acquisition of motor skills and the cognitive processes that control movement. Lastly, the cerebellum may help augment cognitive processes originating in the cerebrum such as language and imagery. The cerebellum is targeted by alcohol and also by the way, and these drug induced cerebellar function deficits are the basis for field sobriety testing. The cerebellum is affected by BAC resulting in problems with coordination, perception, and memory-this occurs at a BAC of 0.14%-0.25%. The BAC is a refection of the percentage of alcohol present in the bloodstream. The BAC is usually what is measured by police officers to determine legal intoxication. It can be measured directly from a blood sample or a breath sample collected by a "Breathalyzer." A blood alcohol level of 30 mgm% will produce a euphoric effect in most individuals who do not have an established tolerance. At 50 mgm% the CNS depressant effects of alcohol become prominent. There is evidence that even at blood alcohol levels of 15 mgm%, present after approximately one drink, there is some impairment in the ability to operate a motor vehicle. At levels greater than 250 mgm%, significant confusion and a decreased state of consciousness may occur. Alcoholic coma may occur at this level, and, at greater than 400 mgm%, death may result. The legal blood limit of intoxication in much of the United States is 0.08. The legal limit of intoxication in most of the states in India is 30mgms%.

Metabolism

After oral ingestion, alcohol is absorbed primarily from the small intestine, with the most absorption occurring in the jejunum. Ethanol is a small molecule that is soluble in water and lipids, enabling it to pass easily through cell membranes**.** It distributes throughout tissues and cells in proportion to their respective water content. Vascular organs can equilibrate quickly with arterial blood and have an increased rate of alcohol distribution. The brain achieves a higher ethanol concentration, more rapidly than other organs.

The rate of metabolism is constant at all blood alcohol concentrations. The liver metabolizes about 90% of ingested alcohol, primarily by oxidation. The remaining 10% is eliminated through the lungs, sweat, and urine. The liver metabolizes alcohol at the rate of about one

half ounce per hour, which is about the same as one drink per hour. (For the purposes of this discussion, a drink is defined as a shot of liquor, a glass of wine, or a can of beer. 12 ounces (354ml) of beer, 5 ounces (147ml)of table wine, and 1.5 ounces (44ml) of 80-proof distilled spirits.)

Almost nothing can speed this rate of metabolism. When alcohol is ingested faster than it is metabolized, the BAC rises. Sobering up is a matter of time. Coffee, exercise and a cold shower will make a person alert, cold, and wet --but not sober.

BAC percent	A person may experience:
0.02-0.03 percent	No loss of coordination. Slight euphoria and loss of shyness evident. Depressant effects are not apparent. Commencement of alteration of mood and behavior.
	Legal limit for driving in India
0.03 percent	
0.04-0.06 percent	Feeling of well-being, relaxation. Lowered inhibitions, sensation of warmth. Euphoria. Some minor impairment of reasoning and memory, lowering of caution.
0.07-0.09 percent	Slight impairment of balance, speech, vision, reaction time and hearing. Euphoria. Judgment and self-control are reduced, and caution, reason and memory are impaired.
0.08 percent	Legal limit of intoxication in United States,
0.10 - 0.125 percent	Legally intoxicated in all states. Significant impairment of motor coordination and loss of good judgment. Speech may be slurred. Balance, vision, reaction time, and

How Common Is Alcohol Dependence?

Making any estimates about alcohol consumption in India is fraught with risk as the data is scarce. Available state wise data suggests about 20-40% of population consuming legal alcohol with extremes of 50% and above in tourism states (Goa and Kerala), North Eastern states, and all Metros. The world estimates of 5-10% of drinking population suffering from alcohol dependence puts the number above 1 crore of alcoholics in India. Unfortunately very few are aware of the disease concept and hence do not seek any help.

1/3rd of suicides, 2/3rd of domestic violence, 40% of job absenteeism, 80% of emergency hospitalizations in government hospitals, 20% of psychiatric admissions, 35% of head injuries, happen under the influence of alcohol. 24% of the urban family income and 32% of rural family income is spent on alcohol.

With increasing consumption of alcohol in the country due to changing attitude towards drinking to more permissiveness the above problems are only going to rise exponentially. The age of first drink has dropped down significantly to16.3 from 19.5 two decades back. More women are consuming alcohol than before and many people in their early fifties who have opted for voluntary retirement scheme are succumbing to alcohol.

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Other sobering statistics on alcohol use include the following:

- *7% of the adult population are heavy drinkers (drinking five or more drinks on the same occasion on each of five or more days in the past month).*

- *Young adults (ages 18 to 25) are more likely than all other groups to drink 5 or more drinks on the same occasion, and males are nearly three times more likely than females to engage in this drinking behavior.*

- *There are eight times as many men than women in the heaviest drinking group (top 2.5% of heavy drinkers)*

- *18- to 29-year-olds represent the heaviest drinking group, but daily alcohol use is almost twice as common among people over age 34 than among those 18 to 25.*

- *As the age of first drink drops below fifteen, there is a five fold increased chance of future alcoholism and alcohol related social damage. The chance gradually decreases as the age of first drink touches 21, and then equals the risk associated with other age groups.*

- *60% of males and 30% of females have experienced one or more alcohol-related negative consequence.*

- *The proportion of heavy drinkers is estimated to be higher in the Indian subcontinent than the western population.*

• *In India, Gujarat, Mizoram and Nagaland have banned sale of liquor. Still consumption of alcohol is supposed to be rampant in these states.*

• *Per capita alcohol consumption in India for legal alcohol is 1.7 liters. Illegal alcohol is considered to be 3 times more than the legal alcohol (about 5.4 liters). Total per capita consumption hence comes to around 7.1 liters. (Pl note that for counting per capita consumption total sales of alcohol in liters is divided by the estimated population above 15 years of age). (Alcohol Status Report- India, WHO 2005)*

Alcoholism and Age (Alcohol-Related Issues)

Protective factors which make it more unlikely that a child will use alcohol or develop alcohol problems include: Strong family bonds, good academic grades, participation in extracurricular school activities, routinely eating dinner together as a family, and identifying a parent as a person they would turn to and can turn to for help.

Researchers who watch the population, and for that matter anyone who watches children grow into responsible adults, have long observed age-related peaks and declines in alcohol consumption and therefore in problem drinking. Consumption generally begins in the developmental period of adolescence. The prevalence of alcohol consumption is seen to start in around 8th grade in India. The frequency increases in affluent class, or disturbed families or children with easy access to unmonitored money by 10th grade. After early college years, staying away from family, liberal family attitudes, academic under achievement aggravate alcohol consumption. People who begin drinking before age 15 are five times more likely to develop alcoholism than those who begin at age 21.

Adolescents who have good attachments, community involvement, and a strong belief system are more likely to refrain from alcohol consumption. Peer influence also plays a role. Adolescents who are among peers who engage in deviant behavior are more likely to do so themselves. And having a strong attachment element in the family will decrease the risk of the adolescent needing to attach to a group of peers who are risk takers.

Alcoholism and the Elderly (Alcohol-Related Issues)

Epidemiological studies have shown that 6-11% of older adults (ages 65 and older) who are admitted to the hospital exhibit symptoms of alcoholism, as well as 20% of those in psychiatric wards and 14% in the emergency room.

Because the volume of extracellular fluid, plasma, and total body water decrease with age, the resulting significant decrease in the volume of distribution for alcohol may contribute to higher peak concentrations and lead to toxicity. Since body fat as a percentage of total body weight increases with age, the volume of lipophilic drugs, such as diazepam, may increase and contribute to a longer half-life or prolonged tissue accumulation and delayed elimination. This may make alcohol -Benzo interactions more likely and problematic. Medications such as morphine derivatives that may cause hypotension have more profound effects on the elderly simply due to the normal aging process. A decline in kidney structure and function with normal

aging reduces its ability to eliminate drugs that are primarily excreted through the kidneys. Long-term alcohol consumption activates enzymes that break down toxic substances, including alcohol. These enzymes may also break down some prescription medications. Alcohol-medication interactions are common among the elderly causing negative health effects.

Sensitivity to alcohol's health effects may increase with age. A higher BAC level results from the decrease of body water, due to age, in which to dilute the alcohol. Elderly may be able to metabolize and eliminate alcohol as efficiently as younger persons, but they are at increased risk for intoxication and adverse effects.

Alcoholism and Gender

Alcoholism is an "equal opportunity" disease that occurs in men and women. Nearly 4 million American women ages 18 and older can be classified as alcoholics or as problem drinkers, one-third the number of men. Of these women, 58% are between the ages of 18 to 29. The lower rate of alcoholism among women may be because they drink less frequently and consume in moderation when they do drink.

Because of physical differences between men and women, on average, women show the effects of alcohol more immediately, more intensely, and for longer periods of time than men. When a person drinks a large amount of alcohol, it is deposited in fatty tissues. Because women have a higher percentage of body fat, they have more "sponges" to hold the alcohol in the body for longer periods of time. Women also produce a lower level of the enzymes required to break down alcohol. In addition, female hormones make women's bodies more susceptible to alcohol at certain times of the menstrual cycle. For a given amount of ingested alcohol women achieve higher blood alcohol levels. In general women have a smaller body size, higher fat content, smaller volume of distribution for alcohol, have less gastric-ADH, and experience a delay in gastric emptying during the luteal phase of the menstrual cycle.

Women are more likely than men to react with shame and to hide their drinking from their families, and women's families tend to deny problem drinking by their female family members more than men's families do. Alcoholic women have substantially more coexisting depression than do alcoholic men. Alcoholic women have a high divorce rate and are abandoned by their spouses more frequently than are alcoholic men.

Because of these factors, it is thought that women develop alcoholism more quickly than men, and their progression to severe complications, such as liver disease, is more rapid. The death rate among women alcoholics is higher than among males because of their increased risk for suicide, cirrhosis, and hepatitis.

- Women develop cirrhosis of the liver at a much lower cumulative dose of alcohol than do men; moreover, women remain at increased risk of disease progression even after abstinence.

- The frequency of menstrual disturbances, spontaneous abortions, and miscarriages increases with level of drinking; problem drinking has adverse effects on fertility and sexual function.

• Several studies have reported a link between moderate to heavy alcohol consumption and increased risk of breast cancer.

• Women make up 33% of the Alcoholics Anonymous (AA) membership. Among AA members ages 30 and under, 40% are women. In the USA approximately 45% or more of the members are women.

• In India, Women and youth show the highest incidence of initiation of alcohol drinking.

The Dangers of Drinking When Pregnant (Alcohol-Related Issues)

The dangers of drinking while pregnant are well-documented. Pregnant women who drink risk the chance of their child developing Fetal Alcohol Syndrome (FAS). Prenatal alcohol exposure is known to be toxic to the developing fetus and is one of the leading causes of mental retardation. Excess fetal mortality secondary to drinking is most prevalent during the first trimester of pregnancy. Even drinking as little as one beer a day has been associated with decreased birth weights and spontaneous abortions. Although FAS has received a great deal of publicity, the majority of people may not understand it correctly. For example, one large study of adults from 18 to 44 years old found that the majority of respondents incorrectly assumed that FAS referred to babies born with an addiction to alcohol. In reality, FAS is defined by the existence of certain characteristics of children whose mothers drank during pregnancy:

Symptoms of FAS:

• smaller heads

• deformed facial features and facial appearance (small widely spaced eyes, thin upper lip, epicanthal folds, flat midface)

• abnormal joints and limbs

• decreased birth weight.

Other Less Visible Symptoms of FAS:

• memory problems , problems with learning , attention deficits and hyperactivity , poor coordination , poor judgment and problem solving skills , mental retardation or other manifestations of central nervous system dysfunction

Alcoholism and Ethnicity (Alcohol-Related Issues)

Ethnicity is a complex variable with regard to alcohol, but some findings have proven helpful. Among all adults, whites were more likely than blacks and Hispanics to report lifetime, past-year, and past-month alcohol consumption. Similarly, white adolescents were more likely than blacks and Hispanic youths to consume alcohol in the past year or the past month. Caucasians tend to have a higher rate of consumption than African Americans, and begin to consume alcohol at a younger age. Hispanic-American men tend to have higher lifetime consumption than whites, but Hispanic women tend to be non-drinkers.

Asian Americans are thought to consume the least amount of alcohol. Possibly because as many as 50% of Asian Americans are missing the vital enzyme **aldehyde dehydrogenase,** that is necessary for metabolism of alcohol. When they drink, they become flushed and nauseated and experience other uncomfortable symptoms. However, high rates of alcohol consumption in Japan and other Asian countries indicate that people often learn to tolerate these effects. In contrast, Native Americans historically have had the highest death rate due to alcohol of any ethnic group.

Mental Problems Associated With Alcoholism

Alcoholics generally have co-morbid disorders, meaning they have alcohol problems as well as other illnesses or conditions. These problems may include hepatitis or cirrhosis, personality disorders like antisocial personality disorder, other drug use and nicotine dependence, and a number of psychiatric disorders, from major depression and bipolar illness to eating disorders and anxiety disorders. Treatment of the co-morbid disorder is absolutely essential in preventing relapses to drinking and in preventing other adverse consequences, such as suicide among depressed alcoholics.

Alcoholism and Depressive Disorders

Alcohol is both a stimulant and a depressant depending on the levels and time after drinking. (Many people think it's a stimulant because of the boisterous behavior of some people after a couple of drinks.) Alcoholics are often misdiagnosed as depressed because of the many symptoms of alcoholism that mimic depression. Insomnia, reduced appetite, and decreased energy are just a few of the symptoms that can occur in both diseases. Alcohol can cause temporary depressive symptoms, even in persons who have no history of depression. In fact, as many as 80% of alcoholic men and women complain of depressive symptoms, and at least a third meet the criteria for major depressive disorder. Depression is often a co-morbid disorder and it also can be solely due to alcohol. This is very important because the depression must also be treated. Alcohol intoxication, especially binge drinking, can also cause mood swings that mimic the "highs" of people

with manic depression. Treatment professionals have found that after two or three weeks of abstinence from alcohol and good nutrition, the temporary depressive effects of alcohol dissipate. However, subgroups of alcoholics have true depression or manic depression, and it is critically important to treat these illnesses during alcohol treatment. If true depression is left untreated, many alcoholics will drop out of treatment relapse to drinking.

Alcoholism and Anxiety

Alcohol withdrawal causes many of the signs and symptoms of anxiety and even can fool an expert into thinking that the alcoholic has panic attacks. Alcohol works a lot like the tranquilizers known as benzodiazepines**.** Many people who abuse and are dependent on alcohol have "learned" to drink to temporarily relieve anxious feelings.

However, special problems exist for people with true anxiety disorders who drink to "self-medicate" the symptoms of generalized anxiety disorder, social phobia, and panic disorder. Alcohol may provide temporary relief, but it is not a good treatment for shyness or an anxiety disorder. What the person may get for self-medication is two diseases, anxiety and problems with alcohol.

Alcoholism and Suicide

Among people who attempt suicide, alcoholism is a common diagnosis. Major depression and alcoholism, respectively, are the most commonly diagnosed psychiatric disorders in patients who commit suicide. Next to age, alcoholism and drug addictions are the second most important risk factors in suicide. As many as 85% of individuals who successfully commit suicide suffer from depression or alcoholism, and 70% of alcoholics with co-morbid depression report that they have made a suicide attempt at some point in their lives.

Alcohol intoxication can exaggerate depression and increase the likelihood of an impulsive act like suicide or other forms of violence. Alcohol use is frequently detected in suicide methods involving driving a moving vehicle or overdosing. Alcohol impairs judgment and lowers the threshold to commit suicide, explaining its association with suicide methods that involve a high level of pain.

Alcoholic individuals are at high risk for suicide. In a recent comprehensive review of the subject, it is estimated that the lifetime suicide risk among alcoholic persons is between 2 and 3.4%, a figure 60 to 120 times greater than that of the non-psychiatrically ill population.

The association of alcoholism and suicide is underscored by the observation that 25 to 54% of victims studied by the psychological autopsy technique had diagnosable alcohol abuse or dependence. In order to be most effective at the prevention of suicide, health-care providers must be adept at eliciting both a substance use history and a psychiatric history. Risk factors associated with completed suicide in alcoholism include co-morbid major depression, active drinking, serious medical illness, living alone and interpersonal loss and conflict.

Alcohol and Dependence on Other Drugs

Alcohol dependence and abuse are often associated with dependence on or abuse of other substances like marijuana, cocaine, heroin, amphetamines, **anxiolytics,** and nicotine.

Alcohol may be used to alleviate the unwanted effects of these other substances or to substitute for them when they are not available.

Alcohol and Pain

The perception of being in pain is an important factor of the alcohol dependence syndrome. It is hypothesized, as well as established in some research, that individuals in pain will drink as a means to decrease their perception of pain or as a reaction to painful stimuli.

The Effects of Drinking on Behavior:

Alcohol and Tobacco Addiction

As many as 80% of alcoholics smoke, compared with about a 30% rate in the general population. A recent study of people with alcoholism showed that their tobacco-related rate of death was higher than the rate of death related to alcoholism. Smoking and excessive alcohol use are risk factors for cardiovascular and lung diseases and some forms of cancer. Compared to nonsmoking nondrinkers, the risk for developing mouth and throat cancer are 7 times greater for those who use tobacco, 6 times greater for those who use alcohol, and 38 times greater for those who use both tobacco and alcohol. Nicotine causes the release of dopamine in the nucleus accumbens and alcohol consumption also leads to dopamine release. Neurobiology may make both rewarding in a way that is greater than either alone. Certain enzymes in the liver (i.e., microsomal enzymes) convert some ingredients of tar into chemicals that can cause cancer. Long-term alcohol consumption can activate such enzymes thereby contributing to smoking-related cancers. Smoking and excessive alcohol use are significant risk factors for cancer of the mouth, throat, & esophagus.

Alcohol and Eating Disorders

Alcohol dependence and eating disorders are commonly co-morbid conditions. The process of alcohol detoxification is often accompanied by initial under eating through withdrawals. In a patient with healthy liver, the appetite improves within 2-3 weeks and compensatory overeating is likely to happen due to oral tendencies. In affected liver, appetite correlates with the improvement of liver function.

Alcoholism and Pathological Gambling

As lotteries proliferate and states legalize casino gambling, pathological or compulsive gambling is increasingly being recognized as a major public health problem,. Alcoholism is often a problem among compulsive gamblers. As with depression, each disorder can make the other one more serious. Alcoholics may bet more sums and may be reluctant to quit chasing their losses. Subjects in a recent experiment received either three alcoholic drinks or an equal volume of a non-alcoholic beverage (placebo). The alcohol group persisted for twice as many gaming trials as the placebo group. Half the alcohol group lost their entire cash stake, compared with 15% of the placebo group.

Alcohol Abuse and Sexual Dysfunction (Alcohol-Related Issues)

Alcohol metabolism alters the balance of reproductive hormones in men and women. In men, alcohol can impair the synthesis of testosterone and reduce sperm production. In women, chronic excessive alcohol use may cause a decreased interest in sex. Alcohol increases

production of a form of estrogen called **estradiol**. Increased levels of estradiol have been linked to increased risk of breast cancer for women who drink.

Alcohol and Genetics

As mentioned previously, genetic factors are thought to account for 40-60% of the risk of developing alcoholism. Individuals who have alcoholic relatives are at 3 to 5 times greater risk than the general population. Genetic differences in metabolic or other biological processes may play a role in the development of alcohol addiction in specific individuals. Studies using a self-rated scale have shown consistent results of sons of alcoholic fathers scoring themselves lower than sons of non-alcoholic fathers on feelings of drunkenness, dizziness, drug effect, and sleepiness following alcohol consumption. This suggests that sons of alcoholic fathers have a less intense reaction to alcohol than sons of non-alcoholic fathers. This could help establish a better understanding of future risk of developing alcoholism in these men. More recent studies have found similar results of higher tolerance for alcohol among daughters of alcoholics. In a recent study of adolescent and young adult offspring from families where alcoholism is prevalent, researchers found both neurophysiological and neuroanatomical differences, such as reduced right amygdala volume, when comparing these offspring to controls.

Adolescents Who Drink and Drive (Alcohol-Related Issues)

National surveys show that rates of adolescent driving after drinking and riding with a driver who had been drinking declined significantly from the mid-1980's to the early or mid-1990's, but the declines have not continued in recent years. Rates of driving or riding after drinking were higher among high school seniors who are male, white, living in the western and northeastern regions of the United States, and living in rural areas. Compared with teens who do not drive after drinking, those who do have several characteristics in common: truancy, higher number of evenings out, more illicit drug use, lower grade point average, and less of a religious commitment. Adolescents who drive more miles per week are more likely to drive after drinking. In India, drunk driving is mostly associated with peer influences, family affluence and parental liberal attitudes.

Characteristics of People Who Drive After Alcohol Use (Alcohol-Related Issues)

- Those ages 21 and older (9% of those ages 16-18, 15% of those ages 19-20, 29% of those ages 21-34, and 17% of those ages 50 and older).

- Males, rather than females (31% and 14%, respectively).

- A large majority of those who drove after drinking (86%) reported low or medium past-month alcohol use.

• Of those who drove after drinking, those ages 16-20 were more likely than those ages 21 and older to report heavy alcohol use (five or more drinks on five or more occasions in the past month) (32% versus 14%).

• Those ages 16-20 who drove after drinking were more likely than drivers ages 21 and older to report binge drinking (consuming five or more drinks on one occasion) (39% vs. 13%).

• Of those who drove after drinking, drivers ages 16-20 were more likely than drivers ages 21 and older to report that they drank their first and last drink in less than one hour (30% vs. 15%).

• More than one-third of drivers age 16-20 had an average estimated blood alcohol concentration (BAC) level greater than .08 g/dl (the legal limit for drivers age 21 and older in some states)

Alcohol Antagonists

Presently, there are no effective antagonists that can reverse an ovedose or the intoxicating effects of alcohol. However, there are possible candidates. Naloxone is an opiate antagonist that may reverse ethanol-induced respiratory depression. The other candidate is an experimental benzodiazepine RO 15-4513. This antagonist is said to be able to reverse some of the signs of alcohol intoxication in certain strains of rats.

Physical Problems Associated With Alcoholism

Alcoholics can develop a host of physical disorders. Only a few of the major problems are addressed here.

Alcoholism and Liver Disease

The liver is a particularly vulnerable organ in alcohol consumption, in part because it is where alcohol is metabolized and broken down for reuse and elimination from the body. The most common manifestation among alcoholics is called “fatty liver.” Among heavy drinkers, the incidence of fatty liver is almost universal. For some alcoholics, a fatty liver may precede the onset of alcoholic **cirrhosis**. Fatty deposits have been associated with men who have six or more drinks a day and women who have only one or two drinks daily.

Alcoholic **hepatitis** is a severe condition that is characterized by jaundice, fever, anorexia and right-upper-quadrant pain.

Alcoholic cirrhosis is not a particularly common condition among alcoholics as a total population. However, its prevalence increases among older and more chronic alcoholics. The overall prevalence rate for cirrhosis is 5% to 10% of all alcoholics. More than 60% of persons who develop both alcoholic hepatitis and cirrhosis will die within 4 years. It is not known which individuals will develop cirrhosis. Drinking 12 beers a day for 20 years has been associated with a 50% incidence of cirrhosis.

The relationship between alcohol and the liver serves as the basis for many of the tests that currently identify possible alcohol abusers.

Tests for Less Recent Alcohol Use (weeks): These tests assess prolonged ingestion of high amounts of alcohol (more than 50-60 g/day). The two tests examine carbohydrate deficient transferrin (CDT) and hemoglobin or whole blood acetaldehyde adducts (AA). Both tests are at present in clinical trials to establish sensitivity, specify and differentiate false positives and negatives.

Tests for Chronic Alcohol Use (years): Tests in this category look at the classic toxic markers that use of alcohol leaves on the body. They include:

• liver function tests

• gamma glutamytransferase (GGT)

• aspartate aminotransferase (AST)

• alanine aminotransferase (ALT)

• red blood cell index

• mean corpuscular volume (MCV)

Alcohol and Acetaminophen (Alcohol-Related Issues)

Chronic heavy drinking appears to activate the enzyme CYP2E1, which may be responsible for transforming the over-the-counter pain reliever acetaminophen (Tylenol and many others) into chemicals that can cause liver damage. Even when acetaminophen is taken in standard therapeutic doses, liver damage has been reported. A review of studies of liver damage resulting from acetaminophen-alcohol interaction reported that in alcoholics, these effects may occur with as little as 2.6 grams of acetaminophen (four to five "extra-strength" pills) taken over the course of the day by persons consuming varying amounts of alcohol. The damage caused by alcohol-acetaminophen interaction is more likely to occur when acetaminophen is taken after, rather than before, the alcohol has been metabolized. Moderate drinkers should also be made aware of this potential for interaction.

Alcoholism and Cardiovascular Disorders

A common complication in alcoholism is elevated pulse and blood pressure, often in the hypertension range. Younger alcoholics and those without existing hypertension are less likely to have an elevation

than those who are older and predisposed to some hypertension. When drinking stops, the blood pressure often returns to normal over a period of a few days. One study found that people who had six or more drinks a day were twice as likely to suffer from hypertension than moderate drinkers (two or less drinks a day) or nondrinkers. Aside from hypertension, heavy drinking can adversely effect the heart primarily through **cardiomyopathy** and possibly reduced blood flow through the heart. Alcoholic cardiomyopathy is probably more common than is currently thought because of under diagnosis of alcoholism in general.

The association between heavy alcohol consumption and rhythm disturbances, particularly supraventricular tachyarrhythmias in apparently healthy people are called **"holiday heart syndrome"**. The syndrome was first described in persons with heavy alcohol consumption, who typically presented at weekends or after holidays, but it may also occur in patients who usually drink little or no alcohol. The most common rhythm disorder is atrial fibrillation, which usually converts to normal sinus rhythm within 24 hours. The incidence of the holiday heart syndrome depends on the drinking habits of the studied population. The holiday heart syndrome should be considered particularly as a diagnosis in patients without overt heart disease presenting with new onset atrial fibrillation. Though recurrences occur, the clinical course is benign and specific antiarrhythmic therapy is usually not warranted.

Alcohol and Cancer

Heavy drinking increases the risk of cancer of the tongue, mouth, oropharynx, hypopharynx, esophagus, and larynx. Two-thirds of patients with cancer of the esophagus have a history of heavy alcohol use. Worldwide, almost 90% of all liver-cell cancer arises in patients with hepatitis.

Alcoholism and Gastrointestinal Disorders

Alcohol produces irritation and inflammation of the mucosa lining the gastrointestinal tract. Frank ulceration may occur with chronic alcohol use. The well-known "heartburn" is due to esophageal reflux with esophagitis that commonly occurs with irritation and inflammation of the **gastroesophageal** junction by alcohol. Severe vomiting may result in mucosal tears at this junction and dangerous hemorrhaging.

The stomach and duodenum are sites that are vulnerable to the corrosive effects of alcohol. Short-and long-term alcohol ingestion is associated with gastritis, erosive gastritis, gastric ulceration, atrophic gastritis, and gastric hemorrhage. Furthermore, duodenitis and duodenal ulcerations are a direct result of chronic alcohol irritation and inflammation.

Scarring and obstruction may result from chronic ulceration. Chronic drinking may result in chronic pancreatitis. Abdominal pain and vomiting are common during acute pancreatitis.

Alcoholics may develop diabetes mellitus or hyperglycemia as a result of chronic pacreatitis, when the islet cells in the pancreas are eventually destroyed. Some alcoholics must take insulin when the pancreas stops producing it.

Poor absorption of food and diarrhea are common in alcoholics and are a result of a number of interactive factors. These include alterations in gastric motility, mucosal erosions, and

impaired transport of glucose, amino acids, and vitamins, particularly thiamin and vitamin B12 and the minerals calcium and magnesium.

Alcohol and Malnutrition

Drinking may interfere with the absorption, digestion, metabolism, and utilization of nutrients, particularly vitamins. Alcoholics often use alcohol as a source of calories to the exclusion of other food sources, including nutrients, which may also lead to a nutrient deficiency and malnutrition. Alcoholics in the late stage of the disease may develop anorexia, or severe loss of appetite, and refuse to eat. Alcoholics account for a significant proportion of patients hospitalized for malnutrition.

Studies have suggested that alcoholism is the most common cause of vitamin and trace-element deficiency in adults in the United States. Vitamins A, C, D, E, K, and the B vitamins, are deficient in some alcoholics. All of these vitamins are all involved in wound healing and cell maintenance. Because vitamin K is necessary for blood clotting, deficiencies can cause delayed clotting and result in excess bleeding. Vitamin A deficiency can be associated with night blindness, and vitamin D deficiency is associated with softening of the bones Deficiencies of other vitamins involved in brain function can cause severe neurological damage (e.g. deficiencies of folic acid, pyridoxine, thiamine, iron, and zinc).

Alcohol and Body Weight

Although alcohol has a relatively high caloric value, 7.1 calories per gram (1 gram of fat contains 9 calories), alcohol consumption does not generally result in increased body weight. Moderate doses of alcohol added to the diets of lean men and women do not seem to lead to weight gain. However, obese patients in some studies have gained weight when alcohol is added to their diets.

An analysis of data collected from the first National Health and Nutrition Examination Survey (NHANES I) found that although drinkers had significantly higher intakes of total calories than nondrinkers, drinkers were not more obese than nondrinkers. In fact, women drinkers had significantly lower body weight than nondrinkers. As alcohol intake among men increased, their body weight decreased. An analysis of data from the second National Health and Nutrition Examination Survey (NHANES II) and other large U.S. studies found similar results for women.

Alcohol dependency is associated with vitamin B_1 or thiamine deficiency, which can lead to Wernicke-Korsakoff syndrome. The poor diet of alcoholics who are suffering from Wernicke-Korsakoff syndrome leads to lesions and increased microhemorrhages in the mammillary bodies, thalamus and brainstem. This syndrome can also be associated with diseases of the GI tract when there is inadequate thiamine absorption. When chronic heavy drinkers substitute alcohol for carbohydrates in their diets, they lose weight and weigh less than their non-drinking counterparts. Furthermore, when chronic heavy drinkers add alcohol to an otherwise normal diet, they do not gain weight

Alcoholism and Infectious Diseases

Pneumonia is a frequent cause of illness and death among alcoholics. In some studies, as many as 50% of all patients admitted with pneumonia are alcoholics, but many on these studies did not account for smoking which hugely raises the risk. Also, tuberculosis appears to be prevalent among alcoholics. Other infectious diseases that are over represented among alcoholics are bacterial meningitis, peritonitis, and ascending **cholangitis**. Less serious infections are chronic sinusitis, **pharyngitis**, and other minor infections.

Alcoholism and the Endocrine System

Alcohol affects the endocrine system in a variety of ways. Affected sites are the hypothalamus, the pituitary, adrenal, thyroid, and gonadal glands. Furthermore, liver injury from alcohol disturbs the peripheral metabolism of hormones by changes in hepatic blood flow, protein binding, enzymes, cofactors, or receptors.

Alcoholism and Sleep Disorders

Even though some people believe that alcohol helps them sleep, chronic drinking can induce sleep disorders by disrupting the sequence and duration of sleep states and by altering total sleep time as well as the time required to fall asleep. Specifically, drinking within an hour of bedtime appears to disrupt the second half of the sleep period. The person may sleep poorly during the second half of sleep, awakening from dreams and returning to sleep with difficulty and experiencing daytime fatigue and sleepiness. Many alcoholics are intoxicated when they fall asleep, which may leading to serious sleep disorders, such as chronic insomnia.

Alcoholism and Breathing Disorders

Individuals with alcoholism may be at increased risk for sleep apnea, a disorder in which the upper air passage narrows or closes during sleep. The combination of alcohol, obstructive sleep apnea, and snoring increases a person's risk for heart attack, **arrhythmia**, stroke, and sudden death.

Alcoholism and the Nervous System

The most common neurologic abnormality among alcoholics is a decrease in intellectual functioning or **dementia syndrome**, with a subsequent decrease in recent memory, abstractions, calculations, general knowledge, and other aspects of cognitive functions.

Some complications are the result of thiamine deficiency, which is associated with alcohol dependency, not directly from alcohol. One such neurological complication is Wernicke-Korsakoff syndrome, which involves delirium, clouded sensorium and confusion, ophthalmoplegia, **nystagmus**, and ataxia. Other complications include Korsakoff syndrome, involving a profound loss in recent memory out of proportion to the other cognitive deficits and alcoholic peripheral neuropathy, which results in diminished sensitivity to touch, pinprick, and vibration objectively, and paraesthesias subjectively.

The acute effects of alcohol on the nervous system are signs people commonly think of when they envision an intoxicated person. The degree to which the central nervous system is impaired is directly proportional to the blood alcohol concentration (BAC).

Alcoholism and Brain Damage

Most people who drink do not develop brain damage. However, studies do indicate that reduced **cognitive** function and loss of coordination are possible when damage is done to the hippocampus, the area of the brain responsible for these functions. Older persons with alcoholism exhibit more brain tissue loss than both older and younger persons without alcoholism. These results suggest that aging may render a person more susceptible to alcohol's effects.

Wernicke's Syndrome

Wernicke's Syndrome is notably frequent among chronic alcoholics, and is due to a deficiency of vitamin B_1 or thiamine. The poor diet of alcoholics who are suffering from this syndrome leads to lesions and increased microhemorrhages in the mammillary bodies, thalamus and brainstem. This syndrome can also be associated with diseases of the GI tract when there is inadequate thiamine absorption. Neurologic symptoms include confusion, memory loss, impaired movements and peripheral neuropathy. Immediate administration of thiamine is usually successful in treating the symptoms, but sometimes permanent memory loss occurs.

Normal Drinking and Benefits

Alcohol is consumed safely by the vast majority of drinkers, but it is a cause of considerable damage and death. As many as 90 percent of adults in the United States have had some experience with alcohol. About two-thirds of males and a third of females have had one or more bad experiences with alcohol, such as driving under the influence or missing school or work because of a hangover. Alcohol is part of many cultures around the world and most drinkers learn from their bad experiences to moderate their drinking so they do not have accidents or develop alcohol dependence or abuse.

The French consume large amounts of wine and high cholesterol foods, yet they have a low incidence of heart disease. The Japanese drink large amounts of saki, but eat basically low cholesterol foods and have a low incidence of heart disease. Other cultures drink scotch and still others beer. Should we be drinking more, regularly, or less? Data for health benefits associated with low to moderate drinking appear to be common in many of the world's medical journals. Alcohol intake reduces all cause mortality primarily due to its ability to decrease cardiovascular diseases, most especially coronary heart disease. Light to moderate alcohol intake from beer, wine or spirits is associated with a reduction in all-cause mortality. The relationship between alcohol intake and reduced risk of coronary disease is generally accepted with a U shaped curve of low-dose protective effect and higher doses loss of protective effects and more all-cause deaths.

As in most things in life, moderation appears to be the key. Over the past decade a number of researchers have reported that moderate alcohol consumption helps to reduce, or even prevent, the development of **coronary artery disease** (CAD) and **myocardial infarction** related to this disease. Reduced mortality in moderate drinkers is noted at three to four drinks per week; this also includes drinkers who consume one to two drinks a day for men and no more than one a day for women.

A number of researchers have replicated the finding that moderate alcohol consumption reduces the risk of coronary artery disease, sudden death, and stroke, and suggests that this

effect is mediated by increases in high-density lipoproteins (HDLs). Alcohol does have effects on several markers for coronary risk factors, such as blood pressure, HDL cholesterol, low-density-lipoprotein (LDL) cholesterol, fibrinogen, and clotting factors. Excessive alcohol consumption increases cardiovascular risk factors and mortality.

An acute protective effect of alcohol consumption was also found for regular drinkers who consumed one or two drinks in the 24 hours preceding the onset of cardiac symptoms. Risk of a major coronary event is lowest among men who report daily drinking (e.g., six days a week) and among women who report one or two drinks daily.

It may be too early to prescribe alcohol to patients, but research should continue in an attempt to identify the beneficial effects of alcohol alone. Before alcohol-by-prescription is promoted, the psychiatric and other medical costs associated with drinking need to be considered. Epidemiologists and other researchers are weighing the benefits of moderate alcohol consumption against the risks of addiction and accidents.

What to Advise Patients About Drinking Alcohol

Alcohol has known health benefits. It is one thing to inform patients who drink at moderate levels without health consequences that there is no need to alter drinking behavior. It is more of a problem to advise an abstinent patient or infrequent drinker to begin or escalate alcohol consumption.

Vulnerability to alcoholism, depression, and alcohol-related pathologies varies greatly among individuals and cannot always be predicted before a patient begins or escalates drinking. Similarly, excessive consumption often escapes detection before the onset of related health consequences. The balance of risk to benefit appears to favor giving medical advice to some patients in midlife who are very infrequent drinkers to increase slightly the frequency of drinking and to consider advising some abstainers to start consuming alcohol. Researchers say moderate drinking is heart-healthy for diabetics in the same way it is for other people; easing concerns that alcohol may throw off diabetics' blood-sugar balance. In a 12-year study, diabetics who had one or two drinks daily were up to 80 percent less likely to die of heart disease than diabetics who did not drink, said researchers led by Dr. Charles Valmadrid of the University of Wisconsin-Madison Medical School.

Alcohol is not without risks. Alcohol abuse worsens the course of psychiatric disorders. One-fifth to one-third of the increased death rate among alcoholics is explained by suicide. In countries with high alcohol consumption, the suicide rate is also high.

One should also ask whether the moderate alcohol promotion justified on the basis of a biomedical effect—a reduction in all-cause mortality—might change quality of life or be offensive to a minority. It may be unethical for public institutions to promote abstinence, given the likely adverse effects of abstinence on the risk of major **atherosclerotic disease**. However, existing public educational efforts that target reductions in hazardous and harmful drinking and at the same time encourage drinkers to consume alcohol at responsible levels are appropriate and ethical.

Behaviors that Indicate Normal versus Aberrant Drinking

Social drinking is characterized by the following behaviors:

- *Respect of other's choice to abstain from drinking*
- *Adherence to laws related to drinking*
- *Absence of craving*
- *Indifference to presence of alcohol at social events*
- *Responsible drinking*

Alcohol abuse is characterized by the following behaviors:

- *Drinks to get high*
- *Uses other drugs to boost or sustain high*
- *Uses alcohol as a coping mechanism*
- *Has experienced a blackout*
- *Drinks to avoid withdrawal or the effects of a hangover*
- *Drinking and driving and other high risk behaviors*
- *Suffers consequences in school and job activities*
- *Continues to drink despite adverse consequences*

Alcohol dependence is characterized by the following behaviors:

• *Develops a pattern of compulsive use*

• *Pathological attachment to alcohol or "fatal attraction"*

• *Devotes a lot of time to obtaining and consuming alcoholic beverages*

• *Continues to use alcohol despite evidence of adverse psychological or physical consequences (e.g., depression, blackouts, liver disease, ulcers)*

• *Evidence of withdrawal as characterized by irritability, confusion, agitation, insomnia, craving, lethargy, depression, nausea, or vomiting*

American Psychiatric Association's DSM-IV Criteria for Alcohol Abuse and Alcohol Dependence:

Alcohol Abuse

A maladaptive pattern of use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, over a 12-month period:

• repeated alcohol consumption that results in inability to fulfill obligations at home, school or work

• repeated alcohol consumption when it could be physically dangerous (such as driving a car)

• repeated alcohol related legal problems such as arrests

• continued drinking despite interpersonal or social problems that are caused or made worse by drinking.

Alcohol Dependence

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. tolerance, as defined by either of the following:

• a need for markedly increased amounts of the substance to achieve

• intoxication or desired effect

• markedly diminished effect with continued use of the same amount of the substance

2. withdrawal, as manifested by either of the following:

• the characteristic withdrawal syndrome for the substance the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms

3. the substance is often taken in larger amounts or over a longer period than was intended

4. there is a persistent desire or unsuccessful efforts to cut down or control substance use

5. a great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects

6. important social, occupational, or recreational activities are given up or reduced because of substance use

7. the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance

(Summarized from: American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders, fourth edition. Washington, DC: American Psychiatric Association.)

While strength of attachment to alcohol is the hallmark of early dependency, if the patient denies and denies and no one at home or work comes forward to help with the diagnosis, the physician is often left with nothing more than clinical intuition or a missed diagnosis. While late in the course, some physical clues may become prominent and suggest alcohol abuse or dependence.

Physical Clues to Diagnosing Alcoholism

Gastrointestinal	*Nausea, vomiting, reflux, diarrhea, gastritis, ulcers, esophagitis*
Cardiopulmonary	*Hypertension, palpitations, arrhythmias, recurrent respiratory infections*

CNS	*Anxiety, insomnia, memory impairment, depression, irritability, panic, suicide attempt(s), suicidal thinking*
Miscellaneous	*Gout, impotence, bloated face, parotid swelling, trauma injuries, broken bones, unusual accidents, aches and pains, driving accidents/tickets/problems*
Laboratory Findings	*Elevated values for SGOT, LDH, cholesterol, GGT, MCV, alkaline phosphatase, triglycerides, blood alcohol concentration, serum transferrin, uric acid*
Behavioral clues	*Loss of interest in previously favorite activities and people, marital and financial problems, positive family history, smokes cigarettes, life problems at home and work, angry when someone asks about drinking, legal difficulties, higher than normal scores on screening questionnaires such as MAST and CAGE*

What Should You Expect a Knowledgeable Physician to Do?

Alcoholism is a disease that relapses and is chronic; this is important to mention to patients. If they have stopped drinking in the past, they should not consider the relapse as a sign that they have failed. Many addicts relapse, and one must take a long view of this problem. Once the disease has been presented and the patient acknowledges the problem, the physician needs to make a meaningful and helpful referral.

Certainly in treating congestive heart failure or diabetes, one makes careful and thoughtful referrals. This is the case for alcoholism as well. The first step is to decide about the need for acute hospitalization or inpatient detoxification. It has been established that hospitalization can be cost-effective, but this is not always a possibility, depending on insurance coverage. However, if a patient appears to have acute withdrawal symptoms, has failed outpatient detoxification, appears to be depressed or suicidal, fails shortly after detoxification, has an extremely unstable home situation, or has the possibility of family disruption or job loss, inpatient hospitalization should be strongly considered.

For patients who have not yet developed alcoholism, but in whom the physician feels problem drinking is developing, a brief structured intervention can be effective. Two 15-minute sessions with a physician one month apart can significantly reduce the amount of alcohol consumed and the number of episodes of binge drinking for a one-year period.

For patients who seem to have problem of control, a referral to Alcoholics Anonymous is extremely useful. The physician can take an active role in making this referral by calling AA with the patient present, to help locate meeting sites and identify times for the patient to attend. Finding a sponsor or even reporting to meetings is an important but intimidating process for the neophyte. It is helpful to request that the patient provide feedback to the physician once he or she begins attending meetings.

The short-term goals for treatment include abstinence and attendance at 90 AA meetings in 90 days, or other counseling programs, or involvement in an Employee Assistance Program. Long-term goals include restoration of self-esteem, improvement in social and physical problems, and, generally, long-term abstinence from alcohol use.

A small minority of patients who were clearly alcoholic at some time in their lives wish to go back to a point where they can safely drink. This issue must be considered seriously, given the beneficial effects of moderate alcohol consumption on cardiovascular mortality.

Once abstinence and recovery have occurred, it is important to monitor for relapse. Reasons for relapse are not always known, but they include depression, boredom, loneliness, anxiety, and no longer attending AA meetings. It is important to remember that alcohol is co-morbid with many other addictions and psychiatric illnesses, and they must be looked for as well.

In summary, relapse-preventing psychopharmacologic agents are an important new addition to the armamentarium in treating alcoholism. Medications that deny access to rewarding drugs of abuse rather than punishing the addict for use are in the early phases of development. They signal a dramatic change in the field of addiction medicine and addiction psychiatry. Treatment with the opioid antagonist naltrexone has made some relapsing and even chronic relapsing alcoholics more amenable to the standard therapies such as Alcoholic Anonymous.

Some Patient Advice Ideas

1. Write your reasons for cutting down or stopping.

Why do you want to drink less? There are many reasons why you may want to cut down or stop drinking. You may want to improve your health, sleep better, or get along better with your family or friends. Make a list of the reasons you want to drink less.

2. Set a drinking goal.

Choose a limit for how much you will drink. You may choose to cut down or not to drink at all. If you are cutting down, keep to these limits:

Women: No more than one drink a day

Men: No more than two drinks a day

These limits may be too high for a person who has certain medical problems or who is older. Talk with your doctor about the limit that is right for you. Now--write your drinking goal on a piece of paper. Put it where you can see it, such as on your refrigerator or a bathroom mirror.

3. Keep a diary of your drinking.

To help you reach your goal, keep a diary of your drinking. For example, write down every time you have a drink for one week. Try to keep your diary for three or four weeks. This will show you how much you drink and when. You may be surprised. How different is your goal from the amount you drink now?

Try These Tips:

• Watch out for drinking alone at home.

• Keep only a small amount or no alcohol at home. Don't keep temptations around.

• Drink slowly.

• Take a break of one hour between drinks. Drink soda, water, or juice after a drink with alcohol. Do not drink on an empty stomach—eat food when you are drinking.

• Take a break from alcohol. Pick a day or two each week when you will not drink at all. Then try to stop drinking for a week. When you succeed and feel better, you may find it easier to cut down for good.

• Learn how to say NO. You do not have to drink when other people drink. You do not have to take a drink that is given to you. Practice ways to say no politely. Observe that you will likely have just as much fun as the others who are drinking, and the next morning observe how it feels to be free of a hangover.

• Stay active. What would you like to do instead of drinking? Use the time and money you would spend on drinking to do something fun with your family or friends. Go out to eat, see a movie, or play sports or a game.

• Get support. Cutting down on your drinking may be difficult at times. Ask your family and friends for support to help you reach your goal. Talk to your doctor if you are having trouble cutting down. Get the help you need to reach your goal.

• Watch out for temptations**.** Watch out for people, places, or times that make you drink, even when you do not want to. Stay away from people who drink a lot or bars where you used to go. Plan ahead of time what you will do to avoid drinking when you are tempted.

• Do not drink when you are angry or upset or have a bad day. These are habits you need to break if you want to drink less.

• **Do not give up!**

Treatment Works

The past few decades have seen enormous strides in the treatment of alcoholism. Current treatments for alcoholism have success rates comparable to treatments for other major health and mental health problems. The results of numerous research studies and the daily experiences of treatment professionals and recovering alcoholics all over the country show that treatment works. By the time a person has lost control over alcohol, he or she has often developed some distorted thinking. In the course of the disease, alcohol may take many things away from a person – family and friends, possessions, a job, self-respect. Hope may be one of the last things to go -- simple hope about the future. Alcohol abuse tends to isolate a person from the rest of the world, away from the support of loved ones and from all the daily routines -- a job, sports, activities with friends, simple pleasures -- that once provided hope for the future.

Alcoholics may come to feel so isolated and so hopeless that they are convinced that nothing or no one will ever help them and restore them to the lives they had before alcohol took over. Distorted thinking like this, accompanied by denial, are symptoms of the disease itself and represent major barriers that a person must overcome to get treatment and recover from alcoholism.

Treatment works. People who make the decision to stop drinking will be able to find the treatment and support they need to quit and to remain sober and to regain their lives. However, as with treatment for any other disease, it is important to have a good idea of the options available so that you can make informed choices. It is also important to understand that there is no cure for alcoholism.

Overview of Treatments for Alcoholism:

Phases of Treatment

To understand treatment and make the right treatment choices, it helps to have an overview. Treatment is often seen as having four general phases.

• **Getting started** (assessment and evaluation of disease symptoms and accompanying life problems, making treatment choices and developing a plan).

• **Detoxification** (stopping use).

- **Active treatment** (residential treatment or therapeutic communities, intensive and regular outpatient treatment, medications to help with alcohol craving and to discourage alcohol use, medications to treat concurrent psychiatric illnesses, 12-step programs, other self-help and mutual-help groups).

- **Maintaining sobriety and relapse prevention** (outpatient treatment as needed, 12-step programs, other self-help and mutual-help groups).

Getting Started

First, the alcoholic must overcome denial and distorted thinking and develop the willingness to begin treatment—what Alcoholics Anonymous (AA) calls "the desire" to stop drinking. At this stage, it is important to obtain the help of someone knowledgeable about treatment and the options available.

When getting started, some people have lost control over alcohol to such an extent that they will only be able to make immediate decisions and set the most basic goal of quitting drinking. Development of a detailed treatment plan with goals and choices may have to wait until after detoxification.

On the other hand, "getting started" is exactly the place where some people with alcohol problems "get stuck." In being stuck, denial is always a problem, but complete denial is not universal: people have various levels of awareness of their alcohol use problems, which means they are in different stages of readiness to change their drinking behavior. Professionals have taken advantage of this insight about alcoholism to develop treatment approaches that are matched to a person's readiness to change. The physician can best decide which treatment is best and which is the less restrictive at specific times during your recovery.

Detoxification

The second phase of treatment is stopping use, which can be done on either an inpatient or outpatient basis. Medical evaluation and treatment are particularly important at this stage. A large proportion of alcoholics develop dangerous withdrawal symptoms that must be medically managed either in a hospital or on an outpatient basis.

Although detoxification is a critical step for many alcoholics, most treatment professionals are reluctant to call it treatment, and for good reason. Treatment is what helps a person develop a commitment to change, keep the motivation to change, create a realistic plan to change, and put the plan in action. Successful treatment means a person begins to experience the rewards of seeing the plan work.. Just taking away the alcohol does not automatically produce any of these outcomes.

Withdrawal Symptoms and Medical Management. Abrupt discontinuation or even cutting down on the amount of drinking by persons who are physiologically dependent on alcohol produces a characteristic withdrawal syndrome, with sweating, rapid heartbeat, hypertension, tremors, anorexia, insomnia, agitation, anxiety, nausea, and vomiting. In some ways, alcohol

withdrawal resembles withdrawal, from heroine or from nicotine. Where alcohol withdrawal is strikingly different from heroin withdrawal is that as many as 15 percent of alcoholics progress from the autonomic hyperactivity and agitation common to withdrawal from other drugs to seizures and even death. **Delirium tremens (DTs)** generally occurs within the first 96 hours and can include disorientation, confusion, auditory or visual hallucinations, and **psychomotor** hyperactivity.

From a medical point of view, alcohol withdrawal is relatively easy to manage, and although it once was managed (if it was medically managed at all) exclusively in the hospital, many programs successfully manage it outside of a hospital. Pharmacological management of acute alcohol withdrawal generally involves the use of benzodiazepines, which reduce related anxiety, restlessness, insomnia, tremors, DTs, and withdrawal seizures. Treatment of withdrawal using medications like benzodiazepines is not necessary for all patients. Benzodiazepines are the most widely used and while they may have abuse liability in some patients the long-acting and short-acting Benzodiazepines have been safely used for years. Each has problems though. The long-acting benzodiazepines can decrease rebound symptoms and work for long periods of time but intramuscular absorption can be very erratic. Short-acting Benzodiazepines have less risk of over sedation, no active metabolites and considerable utility in patients with liver problems or disease. Yet breakthrough symptoms can and do occur and risk of seizure is never far behind breakthrough.

Patients with withdrawal symptoms are generally treated with diazepam or chlordiazepoxide in sufficient doses until withdrawal subsides. More severe withdrawal is generally treated with higher doses in a hospital setting. Medications other than benzodiazepines are also used for withdrawal. Anticonvulsants are used safely now to treat withdrawal. They do not have abuse liability and have anticonvulsant and antikindling effects. They have problems too. They do not reduce delirium and can have liver toxicity. Alpha-adrenergic agonists like clonidine can reverse many of the behavioral symptoms of withdrawal but do not prevent seizure and can cause hypotension. Beta blockers can have these problems too. Calcium channel blockers seem to be as effective as the benzodiazepines, but it is not clear whether they provide as much protection against seizures and delirium.

History Lesson: Detoxification without Further Treatment Doesn't Work. In the earliest views of alcohol dependence, relapse to alcohol use was primarily seen as the alcoholic's failure to respond to withdrawal treatment. After all, if the addicted person's primary problem was the trap of withdrawal, it would be reasonable to expect that the newly freed prisoner would gratefully and persistently grasp onto alcohol-free status, never to return voluntarily to the prison of addiction. But many people returned repeatedly for detoxification.

The medical profession was remarkably slow to recognize the ineffectiveness of repeated detoxification. Rather than question the underlying assumption—that medical diagnosis and treatment of withdrawal was the solution to the problem of dependence—physicians seemed content to recycle addicted people through one emergency room or detoxification experience after another for what often proved to be an addiction-shortened lifetime. A new understanding of brain biology shows that withdrawal and reward are entirely separate brain

mechanisms. Detoxification is only the first step in the treatment process—the beginning of a lifelong process.

Active Treatment

Relapse to alcohol dependence is most likely to occur in the first three to six months after a person stops drinking, a period characterized by physiological abnormalities, mood changes, and complaints of anxiety, depression, insomnia, and hormone and sleep problems. Getting active help and support during the early months of sobriety is critical for treatment to succeed.

The third phase of treatment is typically the stage when a person gains the motivation necessary to maintain a commitment to sobriety, the knowledge and skills necessary to stay sober, and the support systems necessary to cope with all the problems of daily life -- the problems that everyone has to face -- without resorting to the old "solution" of drinking. This is where the help of a treatment professional is important. A professional can help the patients better understand how alcohol has affected their lives, so that they can set goals and develop a plan to stay sober and help choose the treatments that are right for them.

Some proven medications are available to help with alcohol craving and to discourage alcohol use. Treatment professional will need to choose medications and treatments for concurrent psychiatric illnesses, like depression or anxiety, if that is appropriate, or for a variety of health problems that often accompany alcoholism.

Research has shown that the longer people stay in treatment – that is the longer they remain sober and actively committed to sobriety – the more likely it is that they will maintain sobriety. Some treatment professionals think of the phase of active treatment as lasting from six months to a year. During the first critical months of treatment, people often need a variety of supports, especially AA (Alcoholics Anonymous) or other self-help groups, to achieve and maintain lasting sobriety.

Maintaining Sobriety and Relapse Prevention

It is often difficult to pinpoint when the active treatment phase ends and a person enters the maintenance phase of recovery. In the active stage of treatment, people learn what they need to do to stay sober and they develop the many skills they will use to avoid relapse. A person could be said to enter the maintenance stage when he or she is comfortable with these skills and has had a chance to rely on them to stay sober when life throws them the inevitable curve-balls, both in crisis situations and in everyday problem situations. Many people in recovery attribute their ongoing sobriety to participation in a support group such as AA or Women for Sobriety.

Alcoholics Anonymous and Other Recovery Organizations

The grandfather of alcohol treatment is Alcoholics Anonymous, a self-help organization founded in 1936 that changed the way professionals thought about alcoholism and treatment. AA developed a very successful "12-step" program that combines self-help with a spiritual foundation and is based on the fellowship of recovering alcoholics. AA is apolitical,

nonreligious and non-profit making organization. It is an international organization with presence in more than 180 countries with its literature published in more than 54 languages.

The organization is run entirely by recovering alcoholics and reaches into virtually every community with a specific program as well as round-the-clock assistance. AA has probably done more to promote the self-help concept than any other organization. Currently there are about 300 million sober alcoholics who vouch that they have been sober because of this fellowship.

There are no membership dues or registration fee to join AA. Any person with desire to stop drinking can become a member and attend meetings. For many alcohol-dependent people, attending an AA meeting is like brushing their teeth. Prevention of relapse is an active daily process. AA provides a fellowship that can be exceptionally positive and counterbalance the loss, grief, and shame often associated with alcohol use and dependence. AA is a fellowship of men and women who share their experiences, strengths and hope with each other that they may solve their common problems and help others to recover from alcohol. Reading and understanding the 'Big Book' and the structured 12 step program of self change are the guiding forces in AA.

Patients can find the listing for this group in a phone book. Typically a person in recovery will answer the phone. One of AA's principles is the value of performing services that will help other alcoholics. Answering the phone at the local AA office is one of these services, reserved for those who have been in recovery long enough to answer questions knowledgeably and provide a nonjudgmental ear.

In India there are more than 30,000 sober AA members and more than 1000 groups. AA presence in India is more in Southern and Western states than in Northern and Eastern regions.

If AA is not listed in your local phone book, you can learn more about meetings in your area by calling the General Service Office of Alcoholics anonymous India on 022 2301 6767 or 022 23075134. Ask for information about related family groups like Al-Anon and Alateen, too.

Or, perform an Internet search for Alcoholics Anonymous and you will find literally thousands of helpful Web sites. Some people supplement attendance at face-to-face AA meetings by "attending" on-line groups that include posting to a listserve or encountering other recovering alcoholics in chat rooms.

Medications Used to Treat Alcoholism:

Several medications are available to help treat alcoholism. Some are used for detoxification and others are used to prevent relapse and medications to help with alcohol craving and reduce relapse.

Disulfiram

Disulfiram, commonly known as Antabuse, was the first drug to be made available for the treatment of alcohol dependence. It was approved for treatment of alcoholism by the Food and Drug Administration (FDA) in 1951, and has been used safely and effectively for nearly

half a century. It works by blocking an enzyme that helps metabolize alcohol. Taking even one drink while on Antabuse causes the alcohol to accumulate and produce nausea, vomiting, sweating, and even difficulty breathing. Unless alcohol is consumed, Antabuse is a very safe drug, with virtually no side effects. Antabuse is not a cure, but the American College of Physicians concluded that it can be effective for people who take it and are committed to staying sober.

Medications to Help with Alcohol Craving and Reduce Relapse (Treatment-Based Competencies):

Naltrexone

Naltrexone is a newer medication that has been shown in studies to reduce alcohol consumption by blocking the pleasurable effects of alcohol and reducing craving. It works by blocking endorphin receptors and interfering in alcohol-induced brain reward probably by inhibiting the release of alcohol-induced dopamine, which creates the good feelings people get from drinking. It has a better success rate if used in conjunction with a 12-step program and other types of alcohol treatment, especially coping-skills training.

What is naltrexone?

Naltrexone belongs to a novel class of medications that antagonize opioid receptors and block access to opioid receptors by so-called endogenous or natural morphines, the endorphins, and opiate drugs of abuse. One reason that people drink or use other drugs is that these drugs are reinforcing; that is, they give the brain a feeling or chemical change that makes it pay attention.

The experience of drinking, simply stated, causes people to drink again, to repeat the experience. Basic research has demonstrated that alcohol is positively reinforcing and that animals can be trained to seek and work for alcohol. Development of new treatments such as naltrexone has focused on modifying or interfering with alcohol's access to brain reward circuitry. Your patient might not stop drinking right away, but it would make him or her feel different—less exciting—and this might make it easier to stop.

When was naltrexone approved for the treatment of alcoholism?

Naltrexone was demonstrated to reduce alcohol relapses, decrease the likelihood that a slip becomes a relapse, and decrease total amount of drinking . The Food and Drug Administration (FDA) approved the use of naltrexone in alcoholism in December 1994.

How convincing are the data?

Naltrexone, which has long been used to treat heroin addicts, was not known as a treatment that could reduce alcohol relapse until the 1980s. In 1980, researchers reported reductions in monkey ethanol self-administration when they were pretreated with the opioid antagonist naltrexone. In 1986, Volpicelli and colleagues reported that opiate receptor antagonists might reduce alcohol consumption. These and other data suggested that endogenous opioids were important in alcohol reinforcement.

By 1992, these investigators reported a six-week, double-blind placebo controlled outpatient naltrexone trial with 70 alcoholic patients. They found that the naltrexone-treated patients had a lower relapse rate, fewer drinking episodes, longer time to relapse, and less tendency for a slip to become a relapse.

Also in 1992, O'Malley and associates compared naltrexone with placebo and found that naltrexone-treated patients had lower rates of relapse to heavy drinking, consumed fewer drinks per drinking day, and had lower dropout rates than placebo-treated alcoholics. These studies have since been supported by others.

How does naltrexone work?

While the mechanism of the effect is unknown, naltrexone appears to make alcohol consumption less enjoyable for some people. For example, one patient who was taking naltrexone told his alcohol counselor that he had been drinking "bad beer" because the experience of drinking felt so much different and less interesting. Not only does naltrexone make drinking less interesting, it appears to increase the sedating effects of alcohol and possibly other negative effects.

Over time, because it makes drinking less exciting, naltrexone reduces the "happy hour effect" or the positive feeling people get when they anticipate using alcohol. It also seems to be extremely helpful to people with a strong family history of problem drinking.

Naltrexone may not be a magic bullet or wonder drug , but it is the first medicine approved for the treatment of alcoholism since Antabuse was approved in 1951. Naltrexone works best when it is used in the context of a full spectrum of treatment services, including traditional 12-step-fellowship-based treatments.

How should a patient be started on naltrexone?

After a complete history, physical exam, and laboratory testing, most patients are started on 50 mg orally per day. For most patients, this is the safe and effective dose of naltrexone. Some treatment providers give patients a naltrexone ID card or ask them to order an Alert bracelet that clearly indicates that they are maintained on an opioid antagonist. This is done because if people on naltrexone need an opiate drug or medication for pain relief, the dose of the pain medication usually needs to be adjusted higher.

Are there any side effects?

The most common side effects of naltrexone are lightheadedness, diarrhea, dizziness, and nausea. These tend to disappear quickly in most patients. Weight loss and increased interest in sex have been reported by some patients. In general, patients maintained on opioid antagonists should be treated with nonopioid cough, antidiarrheal, headache, and pain medications. The patient's family or physician should call the treating physician if questions arise about opioid blockade, analgesia, and so on. It is important to realize that naltrexone is not Antabuse: drinking while maintained on naltrexone does not produce side effects or symptoms.

Acamprosate

Acamprosate (brand name Campral) is available by prescription in 12 European countries, and was first approved for use in France in 1989. In Europe, acamprosate has been used to

treat more than 1 million people with alcohol dependence. It works like naltrexone to reduce the reinforcing (pleasurable) effects of drinking and to reduce craving. In the United States, acamprosate has been studied in several clinical trials. Acamprosate is not FDA approved for relapse prevention, but there is good evidence that it is well tolerated and it can reduce drinking days and enhance abstinence in alcohol dependent patients.

Baclofen

A new drug on the horizons of treatment of alcohol dependence apparently helps by reducing the continued facilitation of rewards circuits due to alcohol and reinforcing the functions dorsolateral prefrontal cortex. It is not yet approved by any of the FDAs but clinincal trials are underway. A relatively safe drug with lot of potential.

Who is Ready and Motivated to Quit or Change?

Most people do not cut down or give up drinking all at once. Just like a diet, it is not easy to change. That's okay. If your patient does not reach his or her goal the first time, tell them to try again. Tell them to get support from people who care about them and want to help. Tell them "Do not give up!"

Stages of Change (Treatment-Based Competencies)

Almost 20 years ago, two well-known alcoholism researchers, Carlo C. DiClemente, and J. O. Prochaska, introduced a five-stage model of change to help professionals understand their clients with addiction problems and motivate them to change. Their model is based not on abstract theories but on their personal observations of how people went about modifying problem behaviors such as smoking, overeating, and problem drinking.

The five stages of the model are:

• Precontemplation

• Contemplation

• Determination

• Action

• Maintenance

Understanding your patient's readiness to change by being familiar with the five-stage model of change can help in choosing the right treatments. A treatment professional should help patients know where they are in terms of readiness to stop drinking and help them find and maintain the motivation to stop drinking.

Precontemplation

Individuals in the precontemplation stage of change are not even thinking about changing their drinking behavior. They may not see it as a problem, or they think that others who point out the problem are exaggerating.

There are many reasons to be in precontemplation, and Dr. DiClemente has referred to them as "the Four Rs": reluctance, rebellion, resignation, and rationalization.

- **Reluctant precontemplators** are those who through lack of knowledge or inertia do not want to consider change. The impact of the problem has not become fully conscious.

- **Rebellious precontemplators** have a heavy investment in drinking and in making their own decisions. They are resistant to being told what to do.

- **Resigned precontemplators** have given up hope about the possibility of change and seem overwhelmed by the problem. Many have made many attempts to quit or control their drinking.

- **Rationalizing precontemplators** have all the answers; they have plenty of reasons why drinking is not a problem, or why drinking is a problem for others but not for them.

Contemplation

Individuals in this stage of change are willing to consider the possibility that they have a problem, and the possibility offers hope for change. However, people who are contemplating change are often highly ambivalent. They are on the fence. Contemplation is not a commitment, not a decision to change. People at this stage are often quite interested in learning about alcoholism and treatment. They know that drinking is causing problems, and they often have a mental list of all the reasons that drinking is bad for them. But even with all these negatives, they still cannot make a decision to change

In the contemplation stage, often with the help of a treatment professional, people make a risk-reward analysis. They consider the pros and cons of their behavior, and the pros and cons of change. They think about the previous attempts they have made to stop drinking, and what has caused failure in the past.

Determination: Commitment to Action

Deciding to stop drinking is the hallmark of this stage of change. All the weighing of pros and cons, all the risk-reward analysis, finally tips the balance in favor of change. Not all ambivalence has been resolved, but ambivalence no longer represents an insurmountable

barrier to change. Most individuals in this stage will make a serious attempt to stop drinking in the near future. Individuals in this stage appear to be ready and committed to action.

This stage represents preparation as much as determination. The next step in this stage is to make a realistic plan. Commitment to change without appropriate skills and activities can create a fragile and incomplete action plan. Often with the help of a treatment professional, individuals will make a realistic assessment of the level of difficulty involved in stopping drinking. They will begin to anticipate problems and pitfalls and come up with concrete solutions that will become part of their ongoing treatment plan.

Action: Implementing the Plan

Individuals in this stage of change put their plan into action. This stage typically involves making some form of public commitment to stop drinking in order to get external confirmation of the plan. If they have not done so already, individual in this stage may enter counseling or some form of outpatient treatment, start to attend AA meetings, or tell their family members and friends about their decision – or all of the above.

Making such public commitments not only helps people obtain the supports they need to recover from alcoholism, but it creates external monitors. People often find it very helpful to know that others are watching and cheering them on. What about the others who may secretly, or not so secretly, hope they will fail? For people who get sober and stay sober, one of the many pleasures is to disprove the negative predictions of others.

Nothing succeeds like success. A person who has implemented a good plan begins to see it work, and experiences it working over time, making adjustments along the way. The many things that alcohol may have taken from the person begin to be restored, along with hope and self-confidence and continued determination not to drink.

Maintenance, Relapse, and Recycling

The action stage normally takes three to six months to complete. Change requires building a new pattern of behavior over time. The real test of change is long-term sustained change over many years. This stage of successful change is called “maintenance.” In this stage, an alcohol-free life is becoming firmly established, and the threat of a return to old patterns becomes less intense and less frequent.

Because alcoholism is a chronic disease, the possibility of relapse is always present. Individuals may experience a strong temptation to drink and fail to cope with it successfully. Sometimes relaxing their guard or “testing” themselves begins a slide back. People at this stage of change are armed with a variety of relapse prevention skills. They know where to get the supports they need.

Alcoholics who relapse learn from the relapse. The experience of relapsing and returning to sobriety often strengthens a person’s determination to stay sober

Standardized questions or tests used to detect problem drinkers (Assessment-Based Competencies):

In an office setting the 4 CAGE questions are often used to detect alcohol problems. The first question, 'have you ever felt the need to cut down,' is an easy question to ask. It is not threatening and at the same time suggests to the patient that you understand pathological attachment to ask whether they felt that their relationship to alcohol was developing an intensity that is normally reserved for human love objects. A positive answer to the first and second questions strongly suggests further evaluation and brief intervention.

CAGE Questionnaire

• Have you ever felt you should **cut down** on your drinking?

• Have people **annoyed** you by criticizing your drinking?

• Have you ever felt **guilty** about drinking?

• Have you ever had a drink first thing in the morning (an **eye-opener**) to steady your nerves or get rid of a hangover?

Key: One "yes" response suggests an alcohol use problem. More than one "yes" is a strong indication that a problem exists.

After a patient is CAGE positive, or even if they are negative but clinical suspicion remains high, the AUDIT can be easy to administer and an extremely useful test for alcohol problems.

AUDIT Questionnaire

Circle the number that comes closest to your answer.

• **How often do you have a drink containing alcohol?**

(0) Never (1) Monthly or less (2) Two to four times a month

• **How many drinks containing alcohol do you have on a typical day when you are drinking?**

(0) 1 or 2 (1) 3 or 4 (2) 5 or 6

• How often do you have six or more drinks on one occasion?

(0) Never (1) Less than monthly (2) Monthly

• How often during the past year have you found that you were not able to stop drinking once you had started?

(0) Never (1) Less than monthly (2) Monthly

• How often during the past year have you failed to do what was normally expected from

you because of drinking?

(0) Never (1) Less than monthly (2) Monthly

• How often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

(0) Never (1) Less than monthly (2) Monthly

• How often during the past year have you had a feeling of guilt or remorse after drinking?

(0) Never (1) Less than monthly (2) Monthly

• How often during the past year have you been unable to remember what happened the night before because you had been drinking?

(0) Never	(1) Less than monthly	(2) Monthly

• Have you or someone else been injured as a result of your drinking?

(0) No	(2) Yes, but not in the past year	(4)Yes, during the past year

• Has a relative or friend or a doctor or other health worker been concerned about your drinking or suggested you cut down?

(0) No	(2) Yes, but not in the past year	(4)Yes, during the past year

Please also refer to '22 questions' booklet published by AA.

Further readings

Websites:

NIAAA: National Institute of Alcohol Abuse and Alcoholism: www.niaaa.nih.gov

ASAM: American Society of Addiction Medicine: www.asam.org

APA: American Psychological Association: www.apa.org

AA: Alcoholics Anonymous: www.alcoholics-anonymous.org

UpToDate: www.uptodateinc.com

Books:

ASAM Principles of Addiction Medicine, Second Edition. Edited by Allan W. Graham, M.D. and Terry K. Schultz, M.D.

Substance Abuse: A Comprehensive Textbook, Third Edition. Joyce H. Lowinson, Pedro Ruiz, Robert B. Millman, John G. Langrod, editors. Williams & Wilkins, Baltimore, 1997.

Text Book of Substance Abuse Treatment, Kleber and Galanter