The Disease of Addiction: Origins, Treatment, and Recovery

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Introduction

Addiction can be defined as the continued use of mood-altering addicting substances or behaviors (e.g., gambling, compulsive sexual behaviors) despite adverse consequences. We have learned that alcoholism is a primary, chronic disease with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by continuous or periodic impaired control over drinking, preoccupation with the alcohol, use of alcohol despite adverse consequences, and distortions in thinking, most notably denial.1 This is a definition forwarded in JAMA in 1992, and includes the thinking of the American Society of Addiction Medicine and the National Council on Alcoholism and Drug Dependencies. Since that time, continued exploration of the nature of addiction includes other mood-altering substances aside from alcohol, as well as a number of highly reinforcing behaviors.

The common pathways in reward circuitry that affect memory and learning, motivation, control, and decision making are also involved in the addictive process. With the more global understanding of addiction come more treatment strategies, such as meditation and mindfulness training, psychosocial interventions, and pharmacologic approaches. Interestingly, our growing understanding of addiction as a disease has not diminished the value of the spiritually driven approaches, such as 12-step-oriented treatments, that are outlined in this article. An understanding of the disease of chemical dependency, and the multiple approaches to treatment, can assist the primary care physician (PCP) in the treatment of addiction. The PCP is an essential member of the extended treatment team and at the forefront of patient care.

Substance abuse negatively impacts public safety, reduces workers’ productivity, and contributes to higher healthcare costs, premature deaths, and disability for millions of Americans.2 Despite this massive health
problem, only a fraction of affected people get the help they need. A report released in September 2007, by the Substance Abuse and Mental Health Services Administration (SAMHSA), shows that, in 2006, 23.6 million persons aged 12 or older (9.6% of the population) required treatment for alcohol or drug problems with only 2.5 million receiving the help. The PCP is often the first (and sometimes only) clinician to interface with the active addict. This article supplements June 2007 Disease-a-Month, “Substance-related disorders in adults” by Jerold B. Leiken, MD, in which he outlines a practical approach to addressing various clinical presentations of substance abuse, including withdrawal states, potential toxicities, and pharmacologic management strategies. His overview assists the PCP with substance-abusing patients in an office, hospital, or medical setting. This article targets the addict in a mental health setting, such as an addiction treatment program.

The purpose of this article is to further educate the PCP and practitioner in their understanding of addiction and its treatment in a 12-step, abstinence-based treatment program. It will include an outline of the neurobiology of addiction, a brief history and description of Alcoholics Anonymous, the influence of personality on addiction and treatment, the impact on the addict’s family and loved ones, and the ongoing need for spiritual growth and nonchemical coping skills to maintain long-term sobriety. A necessary addition describes Addiction Interactive Disorder which is a global understanding of addiction. It will also emphasize the treatment of addicted professionals: health-care professionals (e.g., physicians, dentists, pharmacists, and nurses), lawyers, executives, and those in safety-sensitive positions (e.g., airline pilots). This group of addicted patients has unique characteristics that may facilitate better treatment outcomes, but also offer certain challenges for the treatment team. The goal of treatment is to replace the addiction with growth in character and satisfaction with lifestyle, or a positive sobriety.

PCPs often complain about limitations and frustrations when treating addicted patients. Some of these patients are candidates for stabilization and treatment in a general hospital or office setting. Many others will require specialized, comprehensive treatment as described in this article. The PCP is often in a key position to initially diagnose and refer the addicted patient to the appropriate treatment program. The PCP needs more than a list of treatment providers or Alcoholics Anonymous meetings. The patient will rarely express eagerness for treatment that requires a solid commitment; therefore, an educated, empathic, and hopeful approach will have greater success in guiding the patient toward
health and sobriety. The physician is often the one person an addicted individual will hear because of their role as a respected confidant.

**An Overview of the Neurobiology of Addiction**

Chemical dependency is defined as the compulsive use of mood-altering chemicals or continued engagement in addictive behaviors despite adverse consequences. Much research and clinical study has been done to further document and recognize chemical dependency as a disease. A percentage of the population has a biogenetic predisposition to chemicals and/or addictive behaviors; however, early life traumatic experience, such as isolation or abuse, can also contribute to a predisposition to addiction. Furthermore, exposure to addicting substances for any reason can produce vulnerability to addiction. In fact, recent studies suggest that even a single exposure to a substance like morphine can make lasting changes in the brain, affecting memory and creating a process of pathological learning; that is, learning to crave drugs. Once there is excessive drug use, there are disturbances in the stress response systems. This often leads to compulsive repetitive patterns in an effort to capture the initial reinforcement and/or block withdrawal. The disease of addiction represents a spectrum of affected individuals. In any case, the end result is the same: repetitive behaviors in the face of negative consequences. Complicating this pattern is the phenomenon of denial. Denial is a complex defense mechanism that typically accompanies addictive disease. Addiction is one disease in which the affected individual is convinced he/she really doesn’t have it. Essential to all treatment approaches is confronting and breaking through denial. Denial is reinforced by both the powerful reward of the addiction and the deficits in learning, motivation, memory, and decision making that accompany this disease process.

**Genetics**

Familial transmission of alcoholism risk is, in part, genetically induced. Animal studies have demonstrated that specific alcohol-related traits like sensitivity to intoxication and sedative effects, development of tolerance and withdrawal, and even susceptibility to organ damage can have genetic origins. Family illness studies, twin studies, and adoption studies have all supported a genetic contribution to alcoholism. The Human Genome Project is also contributing to our understanding of the role of genetics in alcoholism. NIAAA’s Collaborative Study on the Genetics of Alcoholism (COGA), have discovered a reduced brain wave amplitude called the P300 that reflects an underlying genetic variation in the brain’s response to alcohol.
What has been demonstrated in alcoholism has generally held true for other substances of abuse and addicting behaviors. For example, beta endorphin levels may be low in predisposed individuals with an exaggerated response to alcohol and opiates. The stronger urge to drink in the alcoholic may be related to the G allele that predisposes the individual to drug use in general. In his 2003 editorial in The American Journal of Psychiatry, “Predisposition to addiction: pharmacokinetics, pharmacodynamics and brain circuitry,” Dr. Peter Kalivas states: “There is little doubt that the development of addiction to drugs of abuse is in part a function of predisposing factors in an individual’s genome as well as factors associated with childhood and adolescent development.” Furthermore, more research is pointing to the commonality of all addictive processes, whether substance or behavioral in origin.

**Reward**

The reward circuitry of the brain involves the mesolimbic dopamine system: the prefrontal cortex, the nucleus accumbens, and the ventral tagmental areas of the brain. The mesolimbic pathways connect the more automatic bodily functions of the brain stem and peripheral nervous system and the emotional or limbic areas of the brain to the prefrontal cortex, which is the thinking or reflective and decision-making part of the central nervous system. Neurotransmitters (including dopamine and beta endorphins) facilitate the communication of these different systems in the reward center. This pathway is involved in essential behaviors, such as eating, sleeping, and sex, which is essentially hijacked in the addict. The addicts’ initial motivation is to feel pleasure, and eventually the reward pathway shifts its sensitivities to the substance or behavior versus the neurotransmitters. Invariably, a vicious cycle is produced. In the pursuit of reward, the receptors that naturally mediate reward become desensitized or diminished, which creates the need for more substances, contributing to tolerance and withdrawal. The more the addict uses, the more they need, creating the progressive, vicious cycle that is the hallmark of all addictions.

**Learning and Memory**

Learning and memory faculties are negatively impacted in addictive behaviors. Hyman defines addiction in terms of learning and memory and discusses the impact of addictive behaviors in usurping the neural mechanisms of learning and memory that, under normal circumstances, shape survival behaviors related to pursuit of rewards and predictive cues. If survival is too intimately associated in the addict’s mind with securing
the substance of use, then rewards and predictive cues are developed around the substance. Chronic substance use results in impaired reward-related learning, to the extent that the addict may believe that the hedonic properties of the substance far exceed any other goals, and thereby devote their lives to attaining the substance.

Dopamine, a powerful neurotransmitter, can shape stimulus–reward learning to improve prediction while it also shapes stimulus–action learning, i.e., the behavioral response to reward-related stimuli. Cueing involves significant associational memories, and connectionist brain theory suggests that these associations are wired into the brain. For example, a patient placed in the environment in which they previously used a substance may be vulnerable to an emerging pattern of brain stimuli and connections that motivate the patient to use again.

This research suggests a circular pattern of reinforcement with diminished capacity for the addict to incorporate new learning strategies. Addicts are encased in a system of acquisition of a drug and the consistent reward pattern of ingestion, with decreasing awareness of other rewarding stimuli or the need to invest energies in other rewarding activities. More often, the addict maintains a limited consciousness of the destructive and alienating cycles of their addiction and only comes into treatment as a result of some consequence of their use (i.e., spouse’s threat to leave, job intervention, licensing problems, legal difficulties, etc.) and rarely as a result of insight into their behavior and addiction.

The individual with an addictive disease, who has engaged in chronic substance use, will maintain a series of intact or collaboratively fragmented memories of the addictive behaviors and likely recall these memories with ease during periods of craving. Memories of successful sobriety and newly learned behaviors have not likely been practiced with the same level of intensity in early recovery and are therefore vulnerable to being sublimated. Also, addicts will experience a period of time referred to as Post-Acute Withdrawal, early in sobriety. The most common symptoms are lack of concentration, irritability, and insomnia. The addict has adopted a reactive response to feeling uncomfortable, and that reaction is to use a substance. They will need physiological, psychological, and social support to counteract their impulsive need to medicate these uncomfortable feeling states. Educational support is also critical, but education alone will not deter an addict from relapse. Physiological changes that impact behavior do not respond to the intellect, and the very engagement in extended addictive behaviors minimizes the power of the individual’s will, which results in cyclical and self-rewarding patterns of addiction.
**Motivation**

Motivation is another factor with biological components, and pursuit of goals that produce desired outcomes is an integral aspect of addiction and recovery. Kalivas and Volkow\textsuperscript{11} support the theory that addiction involves a dysregulation in the motive circuitry, and the repetitive use of addictive drugs reorganizes brain circuitry to establish behaviors characteristic of addiction. fMRI studies on cue-induced craving clearly demonstrate this increased reaction between the amygdala and the prefrontal cortex when people are actively reminded of their addicting agent. In addition to the obvious consequences of engaging in addictive behavior (i.e., legal, financial, psychosocial), there is a risk of neuronal recircuiting that results in physiological cycles of addictive behaviors, and these circuits are increasingly difficult to break. Kalivas and Volkow propose three temporally distinct phases of addiction that include:

- **Stage 1**: Acute Drug Effects;
- **Stage 2**: Transition to Addiction; and
- **Stage 3**: End-Stage Addiction.

In Stage 1, acute drug administration results in molecular consequences that are widely distributed in the circuitry that impact motivation. Stage 2 reflects neuronal changes, such as D1-receptor-mediated stimulation of proteins. Stage 3 introduces the possibility that changes in protein content and/or function move from temporary to permanent features. The researchers conclude that “cellular adaptations in the prefrontal glutamatergic innervation of the accumbens promote the compulsive character of drug seeking in addicts by decreasing the value of natural rewards, diminishing cognitive control (choice), and enhancing glutamatergic drive in response to drug-associated stimuli.”

**Decision Making**

Decision making is another area of cognitive function negatively impacted by addictive behaviors. A recent publication in *Psychiatry*\textsuperscript{13} suggests that addiction is an imbalance between the neural system that is reactive for signaling pain or pleasure and another neural system that is reflective and controls the reactive system. When the ventromedial prefrontal cortex (VMPC) is injured in patients who are not addicts, they make disadvantageous decisions and fail to learn from their mistakes, contrary to their pre-injury personality. The authors of this article make two striking comparisons between patients with VMPC injuries and addicts: both deny they have a problem and appear to ignore the
consequences of their actions. In addiction, the neural mechanisms that enable an individual to reflect and choose wisely appear to be weakened, and they move from self-directed behavior to automatic sensory-driven behavior. These authors hypothesize that, for certain people, the decision-making mechanism, the process in which one reflects and considers consequences prior to an action, in the brain is weak, and this weakness makes them vulnerable to addiction. The source of the weakness can be genetic or environmentally induced, but always a consequence of the addiction.

Recent fMRI studies demonstrate a split between the ability to make appropriate decisions as the compulsive drive for the chemical or addiction progresses. Nora Volkow’s study, “Impaired Response Inhibition and Salience Attribution in Addictions,” demonstrates that, as the addiction progresses, one’s ability to make appropriate choices diminishes. Increased impulsivity is accompanied by old memories of times past when the addiction worked and negation of options other than engaging in the addiction. Not only are people predisposed to a sluggish reward circuitry (before ever using substance or engaging in addiction), but they also now appear to have some degree of difficulty in decision making. Deficits in the aforementioned areas constitute the vicious cycle of addiction (see Fig 1).

**Addictive Interactive Disorders**

As early as the 19th century, there are references in medical texts to the interaction between addictions. It was called “intemperance,” which states that the use of alcohol and tobacco will lead to excessive eating, sexual behavior, and other misadventures. Addiction Interactive Disorder (AID) implies that addiction has many forms, such as gambling, food, sex, work, certain financial behaviors, and even religiosity. Addictions do not just coexist; they reinforce, intensify, or become part of the rituals of the chemical addiction. A major factor in relapse in chemical dependency is the failure to recognize and treat companion addictions that are a part of the addictive process. Bill W. himself, the founder of Alcoholics Anonymous, suffered from compulsive sexual behavior and financial disorders after he became sober from alcohol.

In his 1996 article in *American Scientist*, Ken Blum describes a reward deficiency syndrome that includes not only alcoholism and drug addiction but also other compulsive behaviors, including gambling, sexual compulsivity, and compulsive overeating. He hypothesized that a variant of the dopamine D2 allele mediates many compulsive behaviors. Often these behavioral addictions are covert and responsible for relapse,
or can initially lead to the chemical addiction. Patrick Carnes, PhD, reinforces this more global view of addiction with an emphasis on sexual compulsivity as a devastating, progressive process that can co-exist with, or be independent of, substance abuse/dependence. Huebner further adds to the AID perspective by arguing that the neuroscience includes deprivation. “Compulsive avoidance” shares the same dopamine reward system (i.e., anorexia nervosa, compulsive athleticism), but it is more than mere avoidance. Addicts become preoccupied and obsessed with the behaviors and ignore the life-threatening consequences. These are people in patterns of extreme living. Huebner proposes that addictions interact at primary levels and thus share etiology and structure, and furthermore, must be treated as a full spectrum disorder, not in a piecemeal approach.

One of the dimensions of AID is replacement. This is the process in which one addiction replaces another as the primary addiction. Because the neuroscience is the same, it is imperative that addicts are educated and

![The Vicious Cycle of Addiction](image-url)
understand the potential of replacing chemical dependency with another addiction. Other addictions often emerge 6 to 12 months after sobriety from mood-altering substances. Another dimension is *ritualizing*, which are rituals associated with the substance use or behavior. When rituals for one addiction are the same or overlap with another, there is an interaction between addictions (AID). All addictive behaviors have the effect of numbing or stress reduction for the addict, however short-lived and deadly.

There are a percentage of patients with chemical dependency that also meet criteria for other compulsive behaviors or addictions. All patients in primary care treatment need to be screened for other addictions. The definition may be simple: that the individual engages in the addictive behavior despite adverse consequences. However, the patient must meet strict criteria in a formal screening before a diagnosis is made. Also, input from others, such as a spouse, is helpful because many patients are protective and secretive about these behaviors and are ambivalent or skeptical about AID and its need to be treated.

Carnes vehemently states the need for all addictions to be treated aggressively. He gives three clinical strategies: (1) The Time Line, (2) *The Neuropathic Interview*, and (3) The Self-Assessment Workshop.

The time line is self-explanatory. It is the concrete task of the patient to create a time line of the major events in their life and adding to it the onset of each addiction, worst moments, and other notable moments. This will give a visual of the AID to the patients and treatment team.

*The Neuropathic Interview* begins with educating the patient on the neuropathways of the brain so the individual might bypass the shame that keeps the behaviors secret and intellectualize the understanding of AID. The counselor is asking questions and collecting the data to present the patterns, the affect and purpose of the phases of the addiction, and finally help the addict identify their triggers for the behavior.

The last strategy, *The Self-Assessment*, is a standardized list of criteria rated by the addict in which they learn the common characteristics of addictions. The result is the insight they gain about the power of their addictions, and the ability to identify how addictions interact to make them vulnerable to relapse. Hopefully, the patient is open to recovery from all addictions, because a relapse in one addiction often causes a relapse in another. The recommendations for continued recovery closely follow the same recommendations for chemical-dependency recovery: commitment to a 12-Step Program (i.e., Gamblers Anonymous, Sexaholics Anonymous, Overeaters Anonymous, etc.) and an ongoing commitment to nonchemical coping skills (i.e., meditation, therapy, optimal nutrition...
and exercise program, etc.). There may be a need for a formal treatment program to address AID and help the client detox from the discomfort they often feel in early recovery.

**The Role of Twelve-Step Recovery**

Alcoholics Anonymous (AA) is the most widely used resource for alcoholism and addiction recovery utilized by addicts and treatment programs. AA meeting attendance is positively associated with long-term abstinence.\(^{18}\) Twelve-Step Recovery is a spiritual program that supports a healthier relationship with self, others, and ultimately a power greater than self. It is also a practical program that identifies three key components for sobriety: (1) what is the problem? (2) What is the solution? (3) What is the action needed to recover? The problem is the addiction, the solution must be sought. The beginning of that search for the solution is reflected in the Second Step of AA: “Came to believe that a power greater than ourselves could restore us to sanity.”\(^{19}\) In addition, the process of seeking can be enhanced through a meditative or reflective practice.

One of the great contributors to the field of addiction, Jelinek, is quoted as saying; “Drunkenness can be a kind of shortcut to the higher life, the attempt to achieve a higher state without an emotional and intellectual effort.”\(^{20}\) It is well known by those in solid recovery in AA that, until the spiritual yearning within the alcoholic and addict is replaced with transcendent endeavors that lead to the discovery of a power greater than self and substances, there can be no transformation. The Big Book, *Alcoholics Anonymous*, tells its readers to “First of all quit playing God.” This act of surrendering involves a feeling of self-transcendence; the alcoholic is admitting they are no longer the center of the world and seeks a connection with a transcendent reality and with other people.\(^{21}\) Patients often need to experience several weeks of sobriety, often within the context of a safe treatment setting, in the absence of the drugs or alcohol, before they can make a decision to pursue a spiritual program. Most treatment programs not only encourage participation in 12-step programs but also psychotherapy (self and family), educational groups, and the development of nonchemical coping skills. There are patients who reject the concept of a higher power, for which AA is not an option. Alternative mutual help programs should be offered.

**Origins of AA**

In order to better understand the 12-step program of AA, one must understand the recovery of Bill Wilson, the co-originator of AA. He was
first treated for alcoholism in 1933 when he entered a hospital treatment program in New York City. He met Dr. Silkworth who explained the theory of alcoholism as an allergy that affected both the mind and the body. Bill understood this intellectually, but needed several more treatments before he experienced a “spiritual awakening.” He was so moved by this experience, he enthusiastically attempted to share it with everyone. One of the next alcoholics Bill spoke with was Dr. Bob Smith, the other co-founder of AA. Dr. Bob was trying in vain to have a spiritual experience, but was unable to manufacture the spiritual awakening in him. However, he did feel a powerful connection to Bill W., and individualized his spiritual experience. It was then the founders were inspired to write the 12 Steps of Alcoholics Anonymous. That was June 10, 1935.

Bill was inspired by William James’ “The Varieties of Religious Experience” at a pivotal time in his own early recovery.\textsuperscript{22} James studied the conversion experience and states that there are three events necessary to bring about conversion: (1) a personal catastrophe, (2) admitting defeat, and (3) a plea for divine help. The conversion experience allows the individual to be free of selfishness. The experience can be sudden or slow, either way it is necessary. Bill expanded on James’ conversion experience by adding that “... we are not cured of alcoholism, what we really have is a daily reprieve contingent on the maintenance of our spiritual condition”.\textsuperscript{19}

Dr. Carl Jung could be the source of “the solution.” Jung had a pivotal role in the early formation of AA. Dr. Jung, in his own experience treating alcohol-dependent people, believed people must accept what is most repressed, feared, and hated within themselves, or that which is most unlovable. Loving oneself allows an individual to cast aside selfish endeavors and replace them with more altruistic feelings. When this occurs, there is a real change. Carl Jung, with his emphasis on the collective unconscious, helped to shape the foundations of AA and Twelve-Step Recovery. AA encourages addicts and alcoholics to have an honest relationship with themselves and others and a connection to a power greater than themselves. That higher power could be freely chosen and was not dictated by AA.

There are now several 12-step programs based on AA available to multiple types of addictions. For example, Narcotics Anonymous for substance dependence and Sex Addicts Anonymous for sex addiction. The general public typically has a suspicious reaction to this “one size fits all” approach or even the “cult-like” nature of the program. It is important
to note, that unlike a cult, AA has no leaders and there are no dues or fees. The only requirement for membership is a desire to stop drinking.

**Chemical Dependency Treatment**

The addicted brain struggling with deficits in reward, learning and memory, motivation, and decision making requires a comprehensive treatment approach. Physical, psychosocial, spiritual, and, in many cases, pharmacological interventions are necessary in treating addicted individuals. The disease model of addiction has promoted a number of effective pharmacological approaches to addiction; however, non-pharmacotherapeutic interventions are necessary as well. As mentioned earlier, most individuals in early recovery benefit from treatment, along with a therapeutic community, the implementation of nonchemical coping skills, and the fellowship of AA. These interventions assist the addict in adopting more adaptive ways to create reward, improve decision making and motivation, and establish new memory. The non-pharmacotherapeutic strategies are powerful enough to create new connections between neurons. In many cases, however, the addict needs both. The path to recovery must be multifaceted to be successful.

An individual referred by a physician for treatment of an addiction will experience a general plan of entry. The addict initially meets with an intake coordinator at a treatment program who would assess the individual and make recommendations for the appropriate level of care. Insurance reimbursement, time constraints, and the addict’s denial play a major role in the decision. The professional assessor is experienced in addressing the above issues before they make recommendations. The first decision is whether the addict or alcoholic needs a period of time in a hospital setting for detoxification. Following a short period of time in detox, generally 2-7 days, the addict chooses the level of care with assistance from the treatment team, which includes the intake coordinator and the addictionologist. For professionals, an intensive abstinence-based treatment strategy with a comprehensive aftercare is strongly recommended. The following outlines the history and strategies of this approach.

**The Minnesota Model**

In the early 1940s, attempts were made to have AA partner with treatment programs, such as Wilmer hospital in Minnesota. Eventually, AA recognized the need for separation from the treatment programs within hospital systems. However, the philosophy of AA became integrated into the treatment process, revolutionizing treatment approaches
and outcome for generations. Pioneer House was the first treatment program in Minnesota to base its 3-week residential program on the philosophy of AA. This Minnesota Model\textsuperscript{23} pioneered a treatment approach that incorporated 12-Step principles and influence while maintaining autonomy and a degree of distance from AA. This model also embraced the concept that alcoholism is a disease, not a symptom of an underlying psychiatric illness. Today, most abstinence-based programs have evolved from this model and have become more inclusive of psychological and pharmacological strategies.

**The Therapeutic Community**

The connection that occurs between addicts in the recovery process is an essential ingredient in both AA and the treatments described in this article. In many ways, an effective treatment program facilitates this connection through a multitude of group opportunities: the small group in the treatment program, the therapeutic community, and 12-Step groups. A therapeutic community is a group of peers with the shared goal of the individual and group well-being and sobriety. In higher levels of care, such as hospital and residential treatments, a therapeutic community always exists. In such a community, modeling more adaptive behaviors by senior patients and an overall expectation of abstinence and compliance with the rules of the program create a safe setting for recovery from addiction. These expectations are complimented by the camaraderie and empathy of the other patients in the community and enhance the motivation and compliance of addicts to seek recovery.

**Levels of Care**

1) Day or Evening Intensive Outpatient Programs (IOP):
   - Averages 4 days or nights a week, 3-4 hours/day or night and 4-6 weeks in duration
   - Small group therapy
   - Didactic and experiential presentations
   - Family involvement
   - Medical and psychiatric assessment and intervention
   - 12-step involvement during and after treatment
   - Typically 3 months of weekly continuing care
   - Assessment of post discharge needs (i.e., individual therapy)

2) Partial Hospital Programs (PHP)
   - Averages 5 days a week, 6-8 hours/day for 4-6 weeks
   - Small group therapy
   - Didactic and experiential presentations
Family involvement
Medical and psychiatric assessment and intervention
12-step involvement during and after treatment
Typically 3 months of weekly continuing care
2 Years of Caduceus aftercare for professionals with random urine monitoring
Assessment of post discharge needs (i.e., individual therapy)

Many individuals request or require Independent Living Programs (ILP) that accompany PHP. The patients enhance their sense of community and support when they live together. PHP/ILP is recommended for the treatment of professionals because it allows for more structure and intensity. Residential Treatment combines the elements of PHP with ILP, except the patient is in an “under one roof” 24-hour supervised setting.

This level of care can provide even more structure for patients with significant comorbidities and/or a history of repeated relapses following the above-mentioned levels of care.

It is important to note the levels of care can vary in structure, length of stay, and program emphasis. Also, various levels of care can work together to provide a continuum for some patients. (For example, a patient who completes a residential program may step down to a PHP or IOP level of care). Also, many patients require structure and sober living conditions after treatment, and are recommended for a half-way or three-quarter-way house).

Continuing Care

Long-term, intensive follow-up is critical to a good outcome for addiction. Most general programs have at least a 3-month aftercare (continuing care) following treatment. For professionals, this is typically intensified with a network of collaborative entities. For health care professionals, state medical society-sponsored assistance programs are typically involved with initial intervention and triage to treatment and then partner with the treatment program to support and monitor and, if necessary, intervene on the recovering individual. The professional treatment programs typically have a contracted continuing care program that includes weekly, professionally facilitated support and monitoring groups, expected attendance in 12-step (or alternative mutual support groups) recovery programs, random urine, blood, or hair analyses, and interval visits with their treatment physician. This continuing care program also monitors compliance with other aspects of a continuing care plan, such as individual or marital counseling, engagement with a
psychiatrist and/or PCP, hospital, group practice, or licensing board when applicable. This program lasts at least 2 years. Concomitant support and monitoring occurs for 5 or more years with the state-sponsored monitoring programs.

The continuing care strategies described above are usually available in a similar fashion for other professional groups. For example, lawyer assistance programs are widespread throughout the U.S., and employee assistance programs often fulfill the same role as state medical society assistance programs. In highly safety-sensitive professionals, federal regulatory agencies are often in this monitoring role. An example of this is the Federal Aviation Agency, which helps monitor recovering commercial airline pilots. This group, in particular, has extremely high compliance and recovery rates.

**Specific Treatment Strategies**

A number of different therapeutic strategies in the treatment of addictions are available to patients. Project Match (1997) is the largest trial ever conducted for alcohol treatment methods. This trial evaluated 1726 clients at 9 sites matching patients to 3 types of treatment strategies: 12-Step Facilitation, Cognitive–Behavioral Skills Training, and Motivational Enhancement Therapy. Overall, Project Match participants showed significant and sustained improvement in decreased number of drinking days, increased number of abstinent days, with few clinically significant differences among the 3 treatment approaches. However, outpatients who received 12-step facilitation were more likely to remain completely abstinent in the year following treatment.24

Some practitioners use these approaches in outpatient, individual therapy. These approaches are also used in the intensive treatment model described in this article along with some of the other strategies described in this section. Individualized treatment planning, described in the next section, helps match the treatment approach emphasized for any given patient at any given time.

**12-Step Facilitation**

It is essential to orient and support the patient in his or her participation in AA. There are manuals available for therapists and patients that can be used for this purpose. In an intensive program setting, this 12-step facilitation is supported by lectures and groups explaining the AA program and allowing a format for questions and discussion. Visitation by AA members in the community also occurs as well as an expectation for the patients to attend AA in the community on a regular basis. In this
program, we correlate the language of 12-Step programs in our self-reports so as to create a continuity between the treatment setting and AA. Issues related to AA and spirituality are discussed openly in the treatment setting in both group and individual formats.

**Cognitive Behavioral Therapy**

Cognitive behavioral therapy is a well-known psychotherapeutic approach that works with thinking patterns that are often dysfunctional and based on flawed core beliefs. This therapy has been adapted to addictions and is frequently used in individual and group approaches. Professionals, as previously noted in this article, can be especially prone to obsessive rumination. Cognitive behavioral therapy can help identify and redirect the thinking process.

**Motivational Enhancement Therapy**

This approach attempts to motivate addicts into moving toward abstinence, or at least moderation. Motivational enhancement therapy progresses through stages: pre-contemplation, contemplation, preparation, and action. Professionals typically accelerate through the stages more quickly because of the greater consequences of continued use of substances. On an individual basis, this approach can be useful in breaking through denial and increasing the openness to accepting help from addiction professionals.

**Mindfulness and Meditation**

Learning how to be present can have significant benefit to addicts. This has been well demonstrated in a multitude of mental disorders, including depression, anxiety, personality disorders, and addiction. Examining self-transcendence as a measurable personality variable (Temperament and Character Inventory) has been helpful in guiding these authors in the incorporation of meditative practices in the treatment plans for patients enrolled in the professionals program.

**Community Reinforcement Approach**

This behavioral approach emphasizes practical ways to have a supportive lifestyle and meaningful relationships in recovery. Vocational training, leisure activities, and marital therapy are the focus with this method. Specifically, in the treatment of professionals, this strategy is essential for overall wellbeing that enhances long-term sobriety.

**Contingency Management**

This approach is based on operant conditioning in which rewards are used to encourage compliance with a treatment plan. For example, an
aftercare contract with a recovering physician that provides advocacy with their workplace for their continued compliance. In the case of professionals, the ability to work in one’s chosen field is a major incentive to engage and comply with a treatment and aftercare plan.

**Medication Management**

Medications can play a critical role in the management of addictive diseases. Anti-craving medications such as acamprosate or naltrexone have proven efficacy in positive treatment outcomes. Naltrexone, which can temper craving and also block the reinforcement of alcohol and opiates, is particularly helpful for the addicted professional. For example, a health care professional addicted to opiates (i.e., anesthesiologists) may agree to take naltrexone so they can return to a work environment in which there remains accessibility to narcotics. It enhances the confidence of the recovering addict and the workplace that agrees to reinstate or hire a newly recovering professional. An injectable form of naltrexone (Vivitrol®) is now approved for alcohol dependence and can be administered monthly.

**Treatment of Psychiatric and Medical Co-Morbidity**

Co-existing psychiatric illness, such as depression, anxiety disorders, and personality disorders, are common in addicted patients including professionals. Aggressive diagnosis and treatment of these conditions are essential for positive outcomes. This holds true for medical co-morbidity, especially chronic pain conditions that frequently co-occur.

**Harm Avoidance**

This approach is sometimes used for heroin addiction in an effort to minimize the consequences of addiction, such as HIV infection or other medical, social, legal, or psychological effects. Methadone maintenance is an example of a harm avoidance strategy by substituting a less potent and abusable opiate that can be monitored and paired with psychosocial support. Infrequently, this strategy is offered to professionals where there is advanced opiate addiction or an individual has a co-morbid pain condition. More recently, buprenorphine, a partial opiate agonist, has been promising in opiate addicts unable to abstain. This medication has less abuse potential and is less prone to produce respiratory depression than methadone.

**Moderation Management**

This controversial approach attempts to teach the alcoholic how to drink in moderation and is not used in the abstinence-based model. Addiction
professionals often observe the alcoholic return to alcoholic drinking. *This approach may be helpful for the alcohol abuser who does not have the disease but is not a consideration for the addict or abuser who is a high accountability professional. Abuse, misuse, and addiction can invariably put the safety of the public at risk.*

**Specialized Treatment for Professionals**

Specialized treatment programs for health care and other professionals have specialized staff and programming that cater to a high-accountability population. They often have a peer group setting that both supports and confronts the feelings of uniqueness common to most professionals. Programs for professionals typically involve residential or partial programs with independent living and longer length of stays. As mentioned earlier, there is evidence that the longer the length of stay, the greater chance of long-term sobriety. There is also an added treatment phase called mirror image therapy that is often used in professional’s programs. This involves the professional acting in a senior patient role with tasks such as assisting the treatment staff with orienting and assisting newer patients. Mirror image hopefully allows the senior patient to see themselves in others, creating empathy and insight into self, and additionally provides a transition at the end of treatment that facilitates the professional in their return to work as a helping professional.

Specialized treatment plans take certain occupational and personality variables into consideration. Treatment plan recommendations with professionals focus on recovery along with career success, improvement of patient relations and care, and specific areas of stress in their individual profession and family. For instance, the medical marriage has unique characteristics that may challenge the recovering physician.

Knowledge about the common traits of professionals with addictive disorders can facilitate the clinician’s formulation of effective individualized treatment plans. In terms of health-care professionals, research studies suggest that physicians tend to be compulsive perfectionists. In his research, Glen Gabbard, MD, describes maladaptive implications that include difficulty engaging in leisure activities or taking vacations from work activities, a tendency to be satisfied with a low level of intimacy, such as the type between physician and patient, and a need to assume control of uncontrollable events. Difficulty setting limits was also noted, along with guilty feelings relative to the pursuit of personal pleasure. Physicians also demonstrate a tendency to seek marital partners who are skilled at maintaining family relationships and household responsibilities,
yet may have difficulty connecting on a deep emotional level with their partners because they are also satisfied with a low level of intimacy.

Social status and financial stability are the rewards in a medical marriage, but the coupleship may experience periods of emptiness along with a lifestyle characterized by delayed gratification. For instance, the medical family feels comfortable with the sense that “things will improve when . . .” the physician is out of residency, the physician begins a private practice, the physician has less time on-call, etc. It becomes a never-ending cycle of waiting for happiness. Future studies may suggest that the combination of high levels of stress, without a commensurate level of emotional intimacy and connection, enhance the physician’s vulnerability to substance use. It is obvious that increased accessibility to drugs, and a dependency on pharmaceuticals in the profession, increase the likelihood of abuse or addiction.

In addition to obsessive tendencies and the minimizing or indirect seeking of dependency needs in professional populations, one study published in the *Journal of Affective Disorders* suggested that physicians and lawyers had higher rates of dysthymic temperament and obsessive compulsive personality traits when compared with the control group of outpatients in various other professions. The use of a self report, the Temperament and Character Inventory (TCI), has been particularly helpful in determining personality strengths and weaknesses and guiding individualized treatment planning in the author’s particular treatment program. This self report emphasizes the importance of character growth in any recovery process. The character inventory includes a scale for self-transcendence which measures spiritual growth, a scale for co-cooperativeness, which measures social interaction, and self-directedness, which measures self governance.

Temperament measures emotional, reactive patterns that are often hard wired in an individual from birth. Some temperament patterns, such as compulsivity and high persistence, are effective in the professional’s pursuit of career goals. These same patterns are assets in recovery efforts.

**The Family**

When the addict chooses recovery, it is their first amends to family and loved ones. A sense of relief is the most prevalent feeling family members experience when the addict/alcoholic commits to enter treatment and begin recovery. As treatment progresses, the family is invited to participate in the program. It is a guide and a beginning of healing the family disease of chemical dependency.
There are distinct phases of recovery that family and loved ones appear to experience when the addict chooses sobriety. These phases are specific to the family of addicts that follow a traditional course of treatment for addiction, which is a formal treatment program that adheres to abstinence and 12-step recovery, followed by ongoing involvement in a 12-step program. They are as follows:

D: Despair. The loved ones often feel despair when the addict first decides to enter a treatment program. Many fear loneliness, loss of control, failure, financial stress, embarrassment, and shame.

R: Relief. Several days to weeks after the addict has been in treatment, there is a welcome feeling of relief. Constant worry about the safety of the addict subsides, there is reduced tension in the home and they feel, sometimes for the first time, a possibility of hope.

A: Anger. Individuals experience different awareness levels and modes of expression of anger. On one end of the spectrum for expression of anger are those that overtly feel and express their anger toward the addict, whereas others may express it as complaints about physical ailments in themselves, idiosyncrasies of the treatment program, or deny having any negative feelings at all. Some family members displace the feeling toward others and experience the addict as a victim.

F: Fear. Fear is almost always about the future. Loved ones fear relapse, financial burdens, job loss, exposure, and long-term effects the disease may have on children and other family members.

T: Tolerance. In time, the family and loved ones learn to tolerate the diagnosis of chemical dependency. This phase can be misinterpreted as acceptance, but it is only the beginning of that journey. Tolerance is defined as the readiness to allow others to believe or act as they judge best.

Involvement of family is crucial to healing this disease; however, timing of the involvement appears to be critical. If the family is too enmeshed, the addict may complain of feeling controlled or even unsafe in sharing their history with the treatment team. The goal of moving from a state of dependency to independency from the chemicals is fostered by the feeling of independency they feel in the treatment community. The ultimate goal in recovery is interdependency with others, but the addict cannot skip independency to achieve this. Following a period of a few weeks in treatment, the patients are usually prepared to listen to their family members describe what it was like for them. Thoughts from family on “what drives the addiction,” along with what they would like to see their loved one work on in treatment aside from sobriety, are important collateral data for the treatment team. It is also helpful to inquire about the
family of origin and look for common themes for the patient. The purpose is not only the gathering of more information about the patient, but also to give family members individual time so they feel heard by the staff and their loved one.

The family is strongly encouraged to participate in the formal and social aspects of the treatment program, to attend Al-Anon or other 12-step support groups and/or meet 1:1 with a counselor in their neighborhood. The family needs support, and if they are able to find a therapist or support group that is available on an ongoing basis and is easily accessible, they become part of the solution and learn to focus on themselves. This is very supportive for the patient, too, because it relieves some of the guilt and shame that may drive their addiction.

The final and most important aspect of family involvement in a formal treatment program is the Family Program. This may be one day/evening a week of education and support or an actual Family Week. In a Family Week, there is typically an educational component combined with a multifamily group therapy. The educational aspect includes an emphasis on the most recent, evidence-based scientific data that will support the disease model of addiction along with practical advice for family, especially regarding relapse prevention. The multifamily group therapy consists of family plus patients presenting written homework assignments to one another in a small group led by a counselor. The effectiveness of this approach is the bonding and similarities the participants experience and increased communication and insight for all group members. The homework is designed to avoid criticism and deepen an understanding of one another. The patient can use this opportunity to make formal amends to family members, but since they are usually working on one of the first three steps in AA, and the amends steps in AA are 8 and 9, it is really a beginning in the amends process. Families are cautioned about high expectations because patients may truly feel remorse and guilt about past behavior, but need time in recovery to fully understand themselves and the ramifications of their behavior.

Addicts in early recovery need to understand that family members are looking for promises of “never again” but they cannot, nor should not, make this promise about their use of drugs and alcohol. The 12-step program wisely advises its members to work the program “one day at a time.” Amends are more readily believed when they are exhibited in behavior. For instance, if a patient tells a family member they will be somewhere at a certain time, the recovering addict makes amends when he shows up as promised, and if he is running late, he calls. When loved ones witness heart-felt attempts at honesty and accountability, they begin...
to experience the recovery of the addict without the necessity of words or promises, which are often initially mistrusted anyway.

There is a common period in the early stages of sobriety frequently referred to as the “honeymoon” phase. The recovering addict and family may experience this during the later half of treatment and upon the initial homecoming. However, it usually disappears and the family members may experience another set of phases after treatment. They are as follows:

**D: Disappointment.** The family members expect sobriety along with the absence of personality defects when the recovering addict returns home. When they realize their loved one’s personality is virtually unchanged, and there is also a new dedication to others outside the family (i.e., 12-step community), they may feel disappointment, which is confusing.

**R: Reality.** The recovering family realizes life goes on, with new commitments and challenges, and recovery becomes an accepted part of the family rhythm.

**A: Acceptance.** The recovering addict and their family begin to feel comfortable sharing their history of chemical dependency with others. The emphasis shifts from shame and guilt to heartiness and gratitude.

**G: Growth.** The family members and loved ones may experience a thirst for more knowledge, a greater ability to focus on themselves, and a deeper connection with the recovering addict and others.

### Outcomes for Addicted Professionals

Research suggests that factors such as voluntary seeking of treatment and the confidentiality of engagement in treatment have an impact on the recovery of addicted professionals. A study by Bohigian and coworkers\(^{30}\) explored the recovery rates of physicians and physician assistants who participated in a confidential, voluntary program of early referral, intervention, treatment, monitoring, and advocacy. The recovery rate of this study involving 197 participants was 90%. Factors in the treatment paradigm included: treating the problem of impairment with compassionate understanding, providing tools to manage the addiction and participation in a 5-year program of compulsory supervision. State Medical Society Assistance programs have been a major contributor to these high recovery rates. Confidential monitoring of physician’s addictive behaviors over time is an attempt to limit the legal ramifications and involuntary referrals from licensure boards. Similar outcomes where noted in a comparative study of physicians in the book “Healing the Healer.”\(^{31}\) In this study, over a 7-year period, upwards of 80% of fully treated and monitored physicians maintained abstinence. The excellent outcomes seen in physicians and other professionals treated in specialized programs
are now an area of intensive study with a hope that the same strategies can be integrated into general treatment of individuals and elevate success rates.

Positive Sobriety

The concept of a “positive sobriety” is critical to the understanding of the model of recovery in this article. Many other approaches focus on abstinence as a primary measure of successful outcome. In this model, abstinence is essential, but only the first step in the process of growth in character and lifestyle. Recovery becomes the catalyst for growth, which includes the recovering addict pursuing spiritual growth as a principle path to well being. The AA program has 12 steps that facilitate this growth. It also has 12 promises\textsuperscript{19} that are the eventual outcome if one practices the 12 steps, which describe an overall acceptance and gratitude, thereby an appreciation of life in recovery that develops in the addict. This is “positive sobriety” (see Fig 2).

Conclusion

Addiction constitutes a major health problem, yet so many addicts are left untreated. With the mounting evidence that verifies addiction as a disease, it is the hope of the authors that these individuals will be less harshly judged and have more access to treatment. The PCP is in a pivotal role to begin that process. Professionals with addictions are particularly sensitive to the stigma of the label of alcoholic or addict and desperately need their peers to understand and support their recovery.

Today, it is understood that addiction is a disease that impacts reward, memory and learning, motivation, and decision making. This disease includes mood-altering addicting substances and some highly reinforcing behaviors, such as gambling and compulsive sexual acting out. Professionals, in particular, respond to programmatic peer-oriented approaches that use several evidence-based clinical interventions. An essential element in the recovery from chemical dependency is the use of 12-step recovery. It is understood, however, that recovery is remission from the disease, that there is no cure. Because addicts are individuals, individualized treatment plans based on personality profiles assist in this process, as does extended aftercare and monitoring. Professionals, in particular, when treated in specialized programs, experience excellent outcomes. But all addicts have the opportunity to recover and improve their quality of life when they are adequately and effectively treated. The family of the addict also benefits when they also pursue their own program of recovery.

Addiction negatively impacts the individual, the family, the health care
profession, and society. And recovery changes that. The authors have spent 25 years personally and professionally witnessing the recovery of addicts and their families and hope to convey a message of “positive sobriety.” It is imperative that PCPs harness that desire and offer addicts and their families options and hope for recovery.

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