REVIEW

Prescription Opioid Abuse and Dependence Among Physicians: Hypotheses and Treatment

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Physician impairment is a serious public health issue affecting physicians as well as their families, colleagues, and patients. Though physicians generally display healthier habits than members of the general population, overall rates of impairment are similar among both groups, and prescription drug abuse (including prescription opioids) is particularly problematic among physicians. The current review focuses mainly on prescription opioid abuse and dependence among physicians. It includes a brief history of early physician experiences with anesthetic and analgesic agents, and explores several hypotheses regarding the etiology of prescription opioid abuse and dependence among physicians. Barriers to identification and to treatment entry among physicians are discussed. In addition, methods of assessment and successful treatment in specialized impaired physician programs are described. Medical and psychosocial interventions, 12-step involvement, and extensive use of evaluations are highlighted. Attention is paid to typical follow-up contracting and monitoring strategies, as well as strategies for prevention. Given the extremely positive outcomes demonstrated by specialized programs for treating impaired professionals, it is recommended that their methods be disseminated and utilized in treatment centers for the general public. (HARV REV PSYCHIATRY 2008;16:181–194.)

Keywords: addiction, assessment, history, opioids, physician impairment, prescription misuse, secondhand exposure, substance use disorders, treatment

INTRODUCTION

Physician Health and Impairment

In general, physicians enjoy better health than the population as a whole and have lower rates of all-cause mortality.[1–4] Although historically not all physicians have displayed the healthy behaviors that they recommend for patients (e.g., participating in exercise, refraining from smoking),[5] recent research has demonstrated that physicians are exercising more[6,7] and smoking less than the general population (e.g., only about 3% of physicians smoke, compared to about 21% of the general population).[8–10] They typically live longer than other professionals.[4] However, physicians also experience job-related stressors (e.g., excessive work hours and sleep deprivation)[11,12] that can impair performance[13] and lead to burnout.[14] In addition, physicians typically take advantage of sick leave less frequently than other professionals.[15] As a result, it may not be surprising that physicians also develop substance use disorders. Overall, the disease of addiction impairs more physicians than any other disorder or disease.[16] Though alcohol use, abuse, and dependence are no more prevalent among physicians than other professionals,[17,18] physicians display higher rates of prescription drug abuse and dependence than the general population,[19,20] including misuse of prescription opioids. In 1992, 13%–23% of female physicians reported using prescription opioids, compared to 1%–3% of women in the general population; and 14%–23% of male physicians reported using prescription opioids, compared to 1%–4% of men in the general population.[20] This discrepancy has continued despite a steady increase in rates

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of opioid prescriptions for the general public.[21,22] As of 2005, rates of nonmedical use of prescription opioids in the general population had reached only 4.9%.[23] Given the concerns for both physician well-being and patient safety, increased attention has recently been focused on the topic of physician substance use disorders in the United States[24,25] and elsewhere.[26–28] Guidelines regarding physician health and wellness have been suggested[29] as a result of research indicating that decreased physician health/wellness is associated with less-optimal patient care.[30–32]

Currently, physician impairment is defined by the American Medical Association as "any physical, mental, or behavioral disorder that interferes with ability to engage safely in professional activities,"[33] and it is used most frequently to refer to physician substance use disorders. Until 1958, physician substance use was not considered a problem worthy of intervention, and it was not until 1973 that the American Medical Association developed a formal policy related to physician impairment.[34] Yet physician alcohol and drug addiction, including prescription opioid abuse and dependence, are not new problems. Rather, physician addiction had been reported in the literature by the beginning of the twentieth century[35] and had been discussed under the label of "habits of intemperance"[36] as early as 1869. The developing problem of physician substance use disorders—and especially misuse of opioids—seemed to coincide with medical advances. Several practitioners who experimented on themselves with potent chemical substances (e.g., opioids and other anesthetics and analgesics) eventually developed substance abuse and dependence.

Brief History of Anesthesiology and Addiction

Modern anesthesiology developed as the result of a long succession of important discoveries. The development of isolated nitrous oxide, the first known anesthetic, can be traced to Joseph Priestly in 1772.[37] Seven years later, his apprentice documented his observation that the anesthetic effects of nitrous oxide might be helpful in the surgical atmosphere.[38] While observing an exhibition of nitrous oxide administration, Horace Wells witnessed a young man under the influence of nitrous oxide injure himself without noticing.[39] Wells subsequently volunteered to submit himself to an otherwise painful dental procedure while under the influence of nitrous oxide. As a result, in 1844 he underwent the first surgical procedure in which nitrous oxide was used to prevent pain.[39] Other research on potential anesthetic agents was occurring at around the same time. For example, Robert Mortimer Glover began to study the physiological effects of chloroform. In 1842, he published a paper describing the pharmacological (e.g., anesthetic) effects of chloroform.[40] In the same year, Crawford Long, who had observed the pain-preventing effects of ether while using it socially during "ether frolics," became the first to perform surgery using ether as an anesthetic.[41] Four years later, William T. C. Morton successfully performed surgery on a patient under the influence of ether and published the results. Word spread quickly, and within six months inhalation anesthesia was being used in Europe as well as the United States.[42]

Experimentation was not confined to inhalational agents. Indeed, Sigmund Freud became interested in the potential medical uses of cocaine, particularly as a stimulant medication and as a treatment for morphine addiction.[43] Karl Koller, Freud's friend, built upon his research, extending it to his own field of ophthamology. He began to experiment with the use of cocaine as an anesthetic for eye surgery,[44] performing the first successful procedure in 1884.[43] Later, learning of Koller's successes, William Stewart Halsted began his own experiments using cocaine as a local anesthetic and was able to demonstrate how "blocking" nerves was helpful in both minor and major surgeries.[43]

Unfortunately, these important developments in anesthesia did not come without a price. Several pioneers in the field fell victim to the disease of addiction, with some dying as a direct result of effects of the anesthetic agents that they helped to discover. Their addiction may have resulted, in part, from secondhand inhalational exposure and sensitization to the substances.[45] For example, after experiencing some difficulty in his work with nitrous oxide, Wells began to experiment with chloroform. He was arrested for his behavior while under the influence of chloroform and killed himself at the age of 33 while in jail.[46] Similarly, Glover became addicted to chloroform and died from an overdose.[40] Freud later prescribed cocaine to his friend Ernst von Fleischl-Marxow, as a remedy for his friend's morphine addiction. Unfortunately, his "treatment" resulted in the development of a cocaine addiction, and von Fleischl-Marxow eventually died from related complications.[47,48] Following self-experimentation with cocaine, Halsted also fell victim to cocaine addiction. He attempted rehabilitation several times and was prescribed morphine to treat the cocaine addiction; however, he then developed a morphine addiction. Though Halsted's final visit to rehabilitation was believed to have "cured" him of his addictions, his close friend and colleague William Osler later reported that Halsted had secretly continued to use morphine on a daily basis until his death.[49]

CURRENT STATE OF PHYSICIAN OPIOID ABUSE AND DEPENDENCE

Currently, despite lower rates of illicit drug use among physicians compared to the general public,[20,50] rates of prescription misuse (particularly benzodiazepines and opioids)

are five times higher among physicians.[51,52] As noted previously, approximately 1%–4% of nonphysicians use prescription opioids, whereas 12%–23% of physicians admit to prescription opioid use.[20] In addition, case reports have shown a new trend for abuse of sublingual and intravenously administered analgesics (e.g., fentanyl)[53] and anesthetic drugs (e.g., propofol) among health care professionals.[54,55] Mainly due to concerns about the safety of patients and public health consequences of physician impairment, all states in the United States have developed physician health committees and now sponsor impaired physician programs;[24] most physicians are referred (or self-referred) for substance use disorders.[56,57] Considering physicians' financial resources and access to care, however, it appears that they are generally underevaluated and undertreated when a substance use disorder is present. One piece of unfortunate evidence supporting this assertion is that rates of completed suicide are much higher among physicians than nonphysicians—40% higher for male physicians and 130% higher for female physicians.[58] Physician substance abuse/dependence is associated with increased risk for suicide,[59–61] and among physicians, anesthesiologists have the highest suicide rates[62,63] and addiction-related mortality risk.[62] Indeed, research has shown that drug abuse among anesthesia residents is sometimes discovered as the result of the resident's fatal drug overdose or suicide, and that 4.5% of anesthesia residents who undergo treatment suffer a relapse-related fatality.[64] Compared to most specialties, anesthesiologists are also overrepresented among substance-abusing physicians,[52,65,66] particularly among those presenting with opioid abuse or dependence.[67] Up to 25% of anesthesiology residents who relapse on parenteral opioids die as a result of their relapse.[68]

Theories Regarding the Causes of Physician Opioid Abuse and Dependence

Given that physicians smoke much less and generally display better health habits than the general population, the relatively high observed rates of prescription opioid abuse and dependence are confusing. Rates of prescription opioid misuse should be lowest among physicians, who generally have the most knowledge regarding the consequences. In general, the definitive causes of physician addiction have not been identified, though several theories have been suggested. Some have suggested that similar factors may influence the development of opioid abuse and dependence among physicians as well as the general public (e.g., genetic predisposition, personality characteristics, youth experimentation with substances of abuse). For example, almost three-fourths of physicians with a substance use disorder have a family history of addiction.[69,70] In addition, a significant minority of physicians (i.e., greater than 30%) may have diagnosable substance use disorders or mental health concerns before beginning their medical careers.[71] With regard to personality, physicians are typically achievement oriented, self-controlled, independent, and less comfortable asking for help from others,[72–74] which could be associated with increased risk for the development of a substance use disorder.[75] Medical students (who have these same personality characteristics and would seem more likely to engage in experimentation than older, practicing physicians) generally display lower rates of illicit drug use[76,77] or alcohol abuse/dependence[78,79] than their peers, but do endorse greater use of alcohol and prescription drugs than their peers.[77]

Perhaps, as others have suggested, physicians turn to substances to cope with stressful work and life responsibilities, and addiction develops as a result of this maladaptive attempt at coping. Research has demonstrated that stressful role expectations and negative consequences of the physician lifestyle (e.g., time-management difficulties, life-and-death decisions, conflicts with patients or staff, managed care challenges) are a reality for many physicians.[80,81] Female physicians may experience additional stressors related to role deprivation (e.g., female physicians are more likely to be unmarried and childless than their peers)[82] or gender-based discrimination or sexual harassment.[83] However, this coping theory does not fully account for the increased rates of prescription drug abuse. Substance-abusing medical residents reported that with the exception of benzodiazepines, their substance use was typically not related to stress.[84] In addition, many impaired physicians deny using drugs or alcohol as a coping method or as an attempt to "self-medicate." Like other opioid abusers, some physicians report using substances to achieve an euphoric effect.[85]

Another theory is that physician addiction results from physicians' easy access to potent agents (e.g., prescription opioids) within the work environment,[86–88] with anesthesiologists being particularly likely to encounter the "best" potentially abusive drugs in their work activities.[89–91] The relative increase in medical use of prescriptions opioids[21,22] may have resulted in increased availability of sample prescriptions. Indeed, many residents and practicing physicians admit to self-prescribing medications,[72,88,92] with up to 87% of practicing physicians[93] doing so. These self-prescribed medications are often obtained from the sample cabinet.[92] Further, in one study of medical residents, 55.3% of those who reported using a prescription analgesic indicated that it had been self-prescribed.[92] Results of another study indicated that a significant number of residents who admitted prescription opioid use began using the drugs near the time that they obtained prescription privileges.[94] However, the rise of increasingly strict anti-diversion programs

in anesthesiology departments has not resulted in a corresponding drop in rates of prescription opioid abuse. In addition, other professionals (e.g., pharmacists, soldiers in combat zones) with similar access to prescription opioids typically do not display the same elevated rates of opioid abuse and dependence seen among anesthesiologists (Walters J [director of national drug control policy], personal communication). Although increased access may contribute to prescription opioid abuse, it does not fully account for the observed rates of prescription opioid abuse among physicians.

Because none of these theories is comprehensive or exhaustive, other theories are needed to help explain the relatively high rates of physician prescription opioid abuse. Recent research has examined the mechanisms underlying opioid sensitization and tolerance,[95,96] which are associated with the development of opioid dependence. When considering how opioid sensitization might affect physicians, Gold[45] hypothesized that physicians (and particularly anesthesiologists) could experience neurobiological sensitization to potent drugs of abuse (e.g., prescription opioids), due to chronic secondhand exposure to low doses of anesthetic and analgesic agents in the work environment. This hypothesis is based upon the assumption that small amounts of these addictive substances, which are aerosolized by patients undergoing surgery, can be inhaled or absorbed through the skin of physicians in the operating room. While not comprehensive, Gold's hypothesis contributes an additional perspective that, combined with other theories, could help to explain the high rates of prescription opioid abuse among anesthesiologists, as well as the finding that opioid abuse and dependence are common among anesthesiologists, surgeons,[45,67] and nurse anesthetists.[97]

Support for the secondhand-exposure hypothesis has been provided by the demonstrations that potent analgesic (e.g., fentanyl) and anesthetic (e.g., propofol) agents can be detected in the air and on surfaces of operating rooms.[45,53,67,98] Recently, others have reported detection of propofol in the expired breath of patients undergoing surgery,[99,100] and of sevoflurane in the air of operating rooms.[101] In addition, there is evidence that operating room staff continue to exhibit elevated levels of inhalational anesthetics in their expired breath after completing the work day.[102] Although the risk of secondhand exposure may be dependent upon safety measures undertaken at each particular hospital, the operating room could be a toxic work environment for some physicians, making them more susceptible to the development of opioid abuse and dependence. Most anesthesiologists do not develop opioid abuse/dependence, so secondhand exposure should be viewed as one additional potential contributor to physician opioid abuse and dependence. Recent studies have suggested that those with a genetic predisposition to addiction or history of early marijuana/tobacco use may be most vulnerable to the effects of secondhand exposure.[98]

Consequences of Physician Addiction and of Treatment Barriers

Like all diseases, the consequences of substance use disorders extend beyond the physical health of those afflicted. Physicians with prescription opioid abuse/dependence are negatively affected with regard to their individual mental, emotional, spiritual, social, familial, and occupational functioning. Loss of wages and the cost of treatment may result in significant financial strain.[103] Other consequences of physician addiction include suicide[59] or accidental death during periods of intoxication; legal problems resulting from substance use (e.g., DUI, domestic violence);[28] and the risk of losing one's job or medical license. In addition, the families, patients, and coworkers of impaired physicians are typically affected negatively. For example, the substance-abusing physician's primary relationship (e.g., marriage) is typically disrupted and marked by increased conflict, and children may display increased risk for developing substance abuse and psychological problems.[104] Further, although physicians frequently do not display markedly impaired work performance until the more advanced stages of addiction,[105,106] coworkers, supervisors, and employers are put at risk if the physician provides substandard care due to intoxication or withdrawal symptoms.

Unfortunately, recognition of the many factors contributing to physician opioid abuse/dependence has not significantly either decreased the stigma associated with impairment or made physicians more willing to acknowledge their opioid addiction. Instead, many physicians and their colleagues fear the perceived negative consequences of a referral for a substance use disorder,[25] and impaired physicians generally do not want to be identified.[107] Similarly, family members often refrain from referring physicians due to concerns about the financial or social ramifications of doing so. These and other barriers may prevent opioid-abusing physicians from obtaining appropriate treatment.[56] In addition, denial is a hallmark symptom of addiction, and impaired physicians typically use sophisticated methods of rationalization to justify their behavior. They also may be particularly adept at hiding the symptoms of their addiction, making identification of the problem more difficult. Most physicians have not been adequately educated regarding the nature of addictive diseases,[108] and many falsely believe that they will be able to control their opioid use on their own. The personality traits that have contributed to physicians' occupational success (e.g., self-reliance, independence, perseverance) may interfere with treatment due to the physician's dismissal of his/her problems or attempts at self-treatment.[20]

DIAGNOSIS AND INTERVENTION FOR PHYSICIANS ABUSING PRESCRIPTION OPIOIDS

As highlighted in recently suggested guidelines for physicians' overall health and wellness,[29] it is imperative that physicians with substance use disorders be identified and referred to treatment in order to minimize negative consequences and maintain patient safety. Physicians have ethical and legal obligations to intervene if they suspect that a colleague's impairment could threaten patient safety,[109,110] and physicians may risk losing their licenses if practicing while impaired. Because of the challenge of intervening and referring a colleague, it is generally considered best to follow recommended guidelines or to work with specialized programs in order to facilitate the intervention.[111] For example, all states now have Physician Health Programs (PHPs; for more information go to http://www.fsphp.org). These programs were designed to assist with the evaluation and treatment of impaired physicians. Referral to a PHP should be considered the first step to successful treatment for physicians who abuse prescription opioids.

Voluntary cooperation with a PHP has many benefits. First, it generally promotes a goal of "treatment" rather than "punishment." Second, in some states, physicians are able to remain anonymous if they agree to enter treatment voluntarily.[112] The PHP may, while maintaining confidentiality, assist with obtaining clinical coverage for impaired physicians during their treatment.[56] Third, in some states, PHPs frequently do not require that physicians who participate willingly in treatment be reported to the Board of Medicine. Given the public health significance of physician impairment, however, mandatory treatment for otherwise uncooperative physicians is considered a socially sanctioned method of coercion.[113] Research has consistently shown that such coercion can be effective for physicians,[111,114,115] who may lose their medical licenses if they are not compliant with treatment.[116] In view of the largely coercive interventions against, and treatment of, impaired physicians, the observation that physician treatment is generally successful, regardless of whether it was voluntary or coerced, may have relevance to treatment for the general population if similar contingencies can be identified.

Evaluation of the Impaired Physician

The initial evaluation is a crucial component of intervention for physicians who are abusing or dependent upon prescription opioids. The addiction specialist/team will make treatment recommendations (e.g., with regard to the setting and conditions of treatment) on the basis of that evaluation. Because patient safety must always be considered ahead of the physician's personal preferences,[107] decisions regarding the optimal level of treatment may be difficult. Most physicians will attempt to negotiate the method of treatment that would be least disruptive to their lives, but the goal should be to maximize treatment outcome in order to reduce the likelihood of relapse and further damage to health, family, and the ability to practice. In general, standard professional guidelines (e.g., the American Society of Addiction Medicine's dimensional assessment guidelines)[117] will not be appropriate in cases of physician opioid abuse/dependence; not only are physicians subject to specialized risk factors for relapse (e.g., access to prescription drugs, environmental exposures, stressful work environment), but the potential ramifications of continued practice in the event of a relapse are especially serious. Treatment setting is usually determined by the physician's prior abstinence experience, severity of his/her opioid abuse/dependence, and presence of additional emotional or psychological problems that could affect treatment.[118]

Impaired physicians are typically motivated to present themselves in a socially desirable manner in order to retain their licenses, practices, and reputations. Self-reports of their impairment may minimize concerns and exaggerate their current level of functioning.[107] As a result, urine, blood, and hair testing are all commonly part of the physician evaluation. In addition, information is collected from the family regarding functioning at home, from other health care personnel regarding functioning at the hospital or office, from other physicians regarding functioning in private practice or with other colleagues, from religious leaders regarding community involvement, and from virtually anyone who has had a longitudinal perspective on the physician. It is important that the evaluator have specialized and extensive experience in addiction and be aware of the issues relevant to evaluation and treatment of physicians with substance use disorders.[119] The evaluator must not be intimidated or easily bluffed. In addition, he should not overidentify with the impaired physician[120] or allow personal biases or desires to "salvage" the physician interfere with the evaluation.[107] Physicians evaluated for prescription drug abuse or dependence often feel that it is imperative to minimize or deny their symptoms, and when confronted they may admit only to the least offensive drug of abuse. For example, one fentanyl addict who overdosed in the middle of a surgery later said to his evaluator, "You do not need to do my urine test, I will tell you that I smoked marijuana yesterday with my wife." He hoped to avoid urine testing by offering a preemptive "confession," but his urine tested positive for additional drugs of abuse, including other prescription drugs. Despite knowing that denial is a core symptom of addiction, it can be tempting to believe such an individual, particularly if one already has a personal relationship with him. Thus, it is best for an unknown evaluator to conduct the assessment. With regard to treatment, referral to a specialized program for impaired physicians is preferred, as there are

additional considerations when treating health professionals (e.g., increased embarrassment, difficulty accepting the "patient role," desire to self-treat, and attempts to "treat" other patients in order to avoid focusing on personal impairments). The presence of peers (i.e., other physicians and professionals) in specialized treatment programs can minimize these barriers by helping impaired physicians accept their diagnosis and reduce their degree of shame.

Medical and Behavioral Health Interventions

Given the potential public health consequences of inadequate treatment among prescription opioid–abusing physicians, most undergo treatment that is longer term and more aggressive than individuals in the general population. Unlike the well-known "28 days" approach to rehabilitation, physicians with prescription opioid abuse/dependence frequently spend three to six months in a structured, intensive treatment program, followed by five years of outpatient treatment and monitoring. Following the comprehensive assessment, treatment may begin with a period of detoxification and stabilization under medical supervision. It should be clear that "detoxification" is not synonymous with "treatment" and is insufficient to promote long-term recovery. As treatment is initiated and progresses, the physician's medical health should continue to be evaluated. For some, opioid antagonist medications may be helpful in preventing recidivism. Indeed, naltrexone appears to be an effective adjunctive treatment for preventing relapse among opioid-dependent physicians.[121] Treatment augmented with acamprosate, naltrexone, or buprenorphine may be recommended. Disulfiram may also be used when the physician has a comorbid alcohol use disorder. Again, these medications should not be viewed as a sufficient "treatment" program, as they do not help the recovering physician learn how or why to avoid using prescription opioids or other substances in the future. Finally, given the stigma associated with methadone maintenance programs, these programs are generally not recommended for physicians with opioid abuse/dependence.[122] For physicians with comorbid psychiatric or behavioral impairment, however, medication management may be recommended. Typically, pharmacological treatment would be utilized in order to manage acute psychiatric symptoms, improve mood and emotional control, and decrease impulsivity.[123]

With regard to overall health, interventions related to diet and exercise are also recommended during treatment for the physician who abuses prescription opioids, as there is evidence to suggest that individuals participating in residential treatment programs for substance use disorders display significant weight gain at discharge.[124–126] From a neurobiological perspective, prescription opioids may serve the same function as natural endogenous rewards (e.g., food, sexual activity). When physicians—like others overcoming a substance use disorder[127–129]—begin to abstain from use of prescription opioids, they may substitute consumption of highly palatable foods. Given that the overwhelming majority of physicians with opioid use disorders do achieve abstinence from drug use following treatment, nutritional education and scheduled physical activity during treatment are important for preventing disordered eating patterns. In addition, participation in physical exercise may assist the physician with stress management and contribute to his or her long-term health and well-being.[130,131]

Psychosocial Treatment

In general, psychosocial interventions play a substantial role in the treatment of physicians with prescription opioid abuse/dependence. The treatment of physicians is noteworthy because, unlike some community-based treatment programs, specialized physician treatment programs include a strong focus on both traditional (e.g., detoxification, medication, urine testing) and psychosocial modes of intervention. The anxious physician is encouraged to talk more in Caduceus meetings (i.e., 12-step meetings for physicians in recovery); the physician with sleep disturbance is educated on sleep hygiene; and the physician struggling with nutrition and weight gain works with a dietician or physical trainer. In general, spending time drug free, improving diet, increasing energy, and participating in psychosocial treatment, taken together, help the physician both to detoxify and to learn how to live without prescription opioids. Yet simply attaining sobriety is not considered sufficient treatment. Upon referral, most impaired physicians are experiencing significant distress and interpersonal conflicts, and many lack appropriate social/communication skills or adequate coping mechanisms. For example, female physicians display significant secrecy and isolation in their substance use.[132,133] It is therefore not surprising that female physicians are likely to enter treatment as a result of subjective distress, whereas male physicians are more often referred for job-related reasons.[134] In addition, about half of physicians with substance use disorders have a psychiatric diagnosis.[119,135,136] A comprehensive evaluation to assess for suicidal ideation/plan and psychiatric comorbidity should be conducted as soon as possible. Moreover, because shame, guilt, and side effects of opioid intoxication or withdrawal may complicate the findings, physicians should be reevaluated post-detoxification[118] to assess for psychosocial factors that might affect treatment planning and prognosis. For many physicians, treatment for psychiatric and behavioral impairments may be required in order to maximize the likelihood of sustained recovery.

During the intensive treatment program, physicians recovering from prescription opioid abuse/dependence typically participate in a variety of therapeutic activities, with

the hope that doing so will help them to accept and understand the nature of addiction, adapt to a life of sobriety, improve interpersonal functioning and repair relationships, learn strategies to prevent relapse, and facilitate their return to a full and productive lifestyle. Psychoeducation regarding the nature of addiction may be facilitated through physicians' attendance at educational lectures or programs. Building knowledge and skills is vital to the physicians' successful recovery. As a result, physicians also participate in individual cognitive-behavioral therapy to examine personal barriers (e.g., negative core beliefs, lack of self-efficacy, and environmental triggers and reinforcers for their prescription opioid use) and develop adaptive methods of coping. Group therapies may be used to share successful strategies and to obtain additional support. Group dynamics assist with confrontation of denial and also provide opportunities to learn from others' experiences. In addition, given the emotional, physical, and interpersonal strain on family members of addicted physicians, marital and family therapy, as well as specialized family programs, are typically considered essential components of treatment.[137] Children of physicians with substance use disorders may be referred for their own psychological treatment as a method of secondary or tertiary prevention.[138] Women physicians generally utilize individual and marital/family therapy services more frequently than male physicians, though they are also less likely than their male counterparts to require psychiatric hospitalization.[134] Finally, it is recommended that physicians overcoming prescription opioid abuse/dependence attend (regularly) a recovering-professionals support group moderated by a treatment provider. These groups typically consist of both physicians in treatment and those living in the surrounding community who have successfully completed treatment and are in recovery. Such interaction serves to provide the physicians in treatment with appropriate peer role models and may enhance their feelings of self-efficacy and hope.

Given the importance of full participation in such activities, it is generally not advisable for physicians with prescription opioid abuse/dependence to obtain treatment within their own medical community. Otherwise, issues related to psychological transference or personal bias may complicate the treatment,[139] particularly if the provider and patient have a previous relationship. For example, limit setting may prove more challenging if the physician-patient is known to the treatment provider. In addition, concerns about limits of confidentiality[140] may discourage physicians from participating fully in individual and group treatments if they fear inappropriate disclosure. The physician should therefore be referred to a treatment center led by addiction specialists (often other recovering physicians who have been certified in addiction psychiatry or addiction medicine) who are relatively unfamiliar to the physician-patient.

Use of 12-Step Programs in Treatment

During intensive treatment for physicians with prescription opioid abuse and dependence, introduction to a 12-step recovery program (e.g., Alcoholics Anonymous or Narcotics Anonymous) is considered an important part of the comprehensive treatment package. Research involving physicians with substance use disorders has supported the efficacy of this intervention.[66,86,141,142] Many physicians choose to participate in a 12-step group comprising only physicians or other health care professionals. Two common options include participation in Caduceus meetings and participation in International Doctors in Alcoholics Anonymous (IDAA). The research suggests that participation in one of these 12-step programs is helpful in many ways. For example, attendance at AA is associated with increased self-efficacy for abstinence[143] and increased spirituality[144]—which may reflect the development of improved coping skills. In addition, AA participants who help other alcoholics (whether, e.g., informally or through formal sponsorship) show lower rates of relapse.[145] Participants in later stages of recovery continue helping other addicts,[144] perhaps out of a desire to continue living the "twelfth step," and perhaps because doing so provides them with additional strength to maintain sobriety. For physicians recovering from opioid abuse or dependence, participation in a 12-step program likely assists with the development of a support network that can be utilized post-discharge from the treatment program, helping to maintain sobriety over time. Despite the many benefits of participation in a 12-step mutual-help group, it should be noted that participation in such groups is not as effective for recovery as participation in an intensive treatment program—even if the physician does not voluntarily participate in the intensive treatment.[146] As a result, facilitation of 12-step program participation should be considered an adjunct to, and not a replacement for, participation in a specialized intensive treatment program.

Contract and Aftercare

Following the intensive treatment phase, plans for continued care should be implemented. Given that retention of the medical license can be a useful bargaining chip to help maintain the physician's sobriety,[147] the patient and treatment team should develop a five-year contingency contract, in conjunction with the state PHP, outlining the conditions under which the physician will retain his or her license. For physicians recovering from prescription opioid abuse or dependence, common elements in such a contract include a commitment to sobriety, drug testing, and follow-up outpatient care. Such care may include attendance at Caduceus, IDAA, or other 12-step program meetings, participation in specialized, monitored groups for recovering professionals,

continued individual or family psychotherapy, psychiatric management, or meetings with an addiction specialist.

Before returning to work, the recovering physician must undergo a psychiatric fitness-for-duty evaluation,[148–150] as well as a comprehensive, performance-based evaluation designed to ensure competency in his or her medical specialty and ability to practice with "reasonable skill and safety." Components of this evaluation might include skill assessment conducted within a patient simulator and successful completion of a mock board exam. After establishing the physician's knowledge and skill deficits, ongoing education and skill development through participation in continuing medical education courses or supervised practice may be beneficial for remediation. However, for physicians with significant cognitive impairments resulting from their substance use (e.g., neuropsychological deficits or dementia), remediation may not be sufficient.[151] Upon return to work, practice monitoring may be utilized, and many physicians agree to decrease their workload following treatment.[152] Using these methods, most treatment programs for impaired professionals report that over 70% of physician addicts (including prescription opioid and crack cocaine addicts) achieve five years of sobriety, are able to return to work, and resume a functional lifestyle.[153]

Monitoring as Continued Treatment Method

In most treatment programs for impaired physicians, continued monitoring and drug screening are considered a vital component to maintaining recovery. In general, PHP contracts require that the physician recovering from prescription opioid abuse or dependence abstain from all mood-altering substances except nicotine. Alcohol is included in the list of banned substances. Although many methods of monitoring physicians' substance use are available (e.g., self-report patient logs, urine screening, blood testing, hair testing), urine screening is generally preferred because it is more accurate than self-report[154,155] and is more sensitive (e.g., it has a longer window of detection) and less invasive than blood testing.[156,157] Hair testing may be used to augment urine testing and to assess drug use over long periods of time, and it has demonstrated sensitivity in identifying use of prescription opioids.[158] In addition, screening for ethyl glucuronide may improve urine screening for alcohol use.[159] Patients are typically followed for five years, and outcomes—measured through urine testing, psychosocial function, and return to work—are likewise defined in relation to this same time period. The outcomes of impaired physicians are generally >80% return to work and drug free, with the latter confirmed by urine testing at five-year follow-up.

Potential concerns about tampering with urine testing have been addressed through direct urethral supervision, point of care testing, and the development of methods to detect adulterants and unreliable samples.[160,161] Typically, random urine testing is conducted for five years posttreatment. An individualized screening panel is developed for each physician, generally consisting of the physician's preferred drug and other high-frequency drugs (particularly other prescription opioids), as research has demonstrated that the drug of relapse is the addict's initial drug of choice in 85% of cases.[70] Random urine testing is frequently accomplished by having the physician call an 800 number on a daily basis to be randomized to urine test or no test for the day. Urine tests are given at least once per week, and sometimes more frequently, depending on the case. Failure to call the 800 number is a predictor that may indicate impending relapse.[162] The urine testing is generally considered a continued form of treatment, not just an outcome measure.[163] For many it serves as a behavioral intervention by maintaining awareness of the disease of addiction and the consequences of substance use.[164] As many as 96% of recovering physicians who are subject to random urine testing remain drug free, in comparison to only 64% of recovering physicians who are not so tested.[165] Many physicians in recovery report that continued urine testing was their most powerful postdischarge therapy and was a crucial determinant of their ability to abstain from use.

Impaired Professional Programs as Model Treatment Approaches

In general, the specialized programs for impaired professionals are similar in their approaches to treatment and methods of intervention. For example, based on their program brochures and materials, the programs at the Betty Ford Center, the Florida Recovery Center, Hazelden, McLean Hospital, Pine Grove Behavioral Health and Addiction Services, and the Talbott Recovery Campus are remarkably similar. Yet there was no collaboration among the programs in developing the models for treating impaired physicians. These programs all generally utilize a combination of educational sessions, group therapy, 12-step programs, relapse prevention, individual and family-based psychotherapy sessions, and development of a posttreatment plan. The quantity and quality of treatment for impaired physicians are typically much greater than that received by individuals with substance use disorders in the general population,[166,167] as physicians typically spend more time in treatment and take advantage of more intensive services. In addition, follow-up services for physicians are generally more intense, with the built-in contingency management described previously (i.e., random drug-screening as a requirement to maintain their medical licenses). As a result, the specialized treatment programs for impaired professionals generally encompass the most comprehensive intervention package available.[19] Although the treatment process is

consequently more expensive and time-consuming, the programs' rates of success provide support for their approach. Whereas relapse rates for addiction in the general public are as high as 90% just one year following treatment,[168,169] physicians with substance use disorders who undergo treatment do quite well in recovery, with relapse rates from 10%–25%.[65,66,70,78,112] Though motivation for sustained recovery is likely increased by physicians' desire to retain their licenses and return to practice, the intensive treatment provides physicians with the tools to maintain their sobriety. Relapse among physicians can be predicted by family history of addiction, comorbid psychiatric diagnosis, and use of a major opioid as the drug of choice.[70] Physicians who do relapse typically reenter recovery with booster treatment.[86] Up to 100% of physicians who go five years without relapse successfully return to the practice of medicine.[70]

Prevention

Unfortunately, most physicians who present for treatment of a substance use disorder display moderately severe problems.[118] In fact, there is evidence that physicians are more impaired at referral now than they were in the past.[135] More work is needed to assist with prevention and early detection efforts in order to minimize the negative consequences of addiction. It is clear that for many, addiction is a disease that begins in childhood or adolescence.[170] Efforts at prevention should begin early, as research has demonstrated that about 50% of medical students have experimented with illicit drugs before beginning medical school and that experimentation increases during medical school.[171,172] Education regarding substance abuse and dependence should begin before high school and be repeated during college as well as medical school.[173,174] In 1965, through the landmark Higher Education Act, the U.S. government required that medical schools establish policies/programs related to substance abuse among medical students, and most medical schools now have such programs. However, there are many opportunities to improve substance abuse education and prevention among medical students. As one noteworthy example, the University of Florida College of Medicine has implemented an innovative program in which all students are required to participate in a two-week clerkship in addiction medicine. Mandatory clinical experience in this area leads to basic competency in addiction medicine, just as it does with obstetrics. Beyond medical school, residency training programs should be vigilant to signs of substance abuse and provide continued education on this topic to house staff. Finally, physicians treating physicians should monitor their patients closely. For example, physicians' primary care providers should rule out substance use disorders at each office visit.[175]

Given Gold's hypothesis regarding the risks of occupational exposure to low doses of anesthetic and analgesic agents via inhalation or skin absorption, additional prevention efforts may be needed to protect health care professionals who spend extended periods of time in the operating room. For example, if this hypothesis is confirmed, more advanced air filtering or ventilation systems may be needed in surgical suites. Other preventive measures might include (1) education regarding the potential for secondhand exposure, (2) limiting the amount of time spent in the operating room, (3) changing masks frequently in order to reduce inhalation risks, and (4) wearing gloves and long sleeves in order to reduce skin exposure. Anesthesiologists might also consider opening and discarding medication vials under a ventilation hood. Finally, surfaces in the operating room should be diligently cleaned after each procedure to reduce the potential for medication residue.

With regard to physicians in recovery for prescription opioid abuse or dependence, relapse prevention and continued monitoring are crucial methods for preventing future impairment.[176] Work-related changes may be needed; for example, minimizing total hours worked and minimizing overnight shifts may be advisable. Other safeguards, such as restricted prescribing privileges or prescription monitoring, may also prove beneficial. Finally, if the stimulus value of the previous work environment (e.g., the operating room) poses too great an environmental cue for substance use, a change in specialty may be necessary. Not surprisingly, anesthesiologists recovering from opioid abuse or dependence who return to anesthesiology are at greater risk for relapse or drug-related death than those who change specialty.[68,70] These physicians experience relatively easy access to prescription opioids on a daily basis, occupational exposure to low doses of these potent agents (which may increase or intensify cravings), and frequent involvement in high-stress situations during patient care. The combination of these risk factors may be too much for some recovering physicians to manage effectively.

SUMMARY

Physician impairment due to prescription opioid abuse or dependence is an important issue with significant public health implications. Individual and family well-being, as well as patient safety, are compromised in cases of physician opioid addiction. Physicians typically display better health than the general population and display lower rates of mortality. Moreover, given their level of education, physician opioid misuse should be much lower than the general population (much like their decreased levels of tobacco use). Nevertheless, rates of prescription opioid abuse and dependence are comparatively high, and suicide is more prevalent

among physicians. History and recent research suggest that family history of substance use, ease of access to prescription opioids, and occupational exposure to anesthetic and analgesic agents may increase the risk of addiction among physicians. Most physicians deny their use of prescription opioids, however, and do not readily accept treatment. With appropriate intervention (e.g., typically in conjunction with the state PHP), methods of evaluation and treatment for addicted physicians are extremely effective. The combination of medical, psychosocial, and support group interventions, combined with extensive posttreatment monitoring and drug testing, generally results in sustained recovery among the physicians who attend specialized treatment programs. These outcomes are typically obtained even when physicians did not enter treatment voluntarily. Thus, it is likely that impaired professional programs represent the best treatment available for opioid use disorders, and nonphysician addicts would likely experience a similar benefit from participating in such a program. More research is needed to clarify the etiology of prescription opioid abuse and dependence among physicians and to improve efforts at prevention.

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