

Special article

Setting the standard for recovery: Physicians' Health Programs

Robert L. DuPont, (M.D.)^a, A. Thomas McLellan, (Ph.D.)^{b,*}, William L. White, (M.A.)^c,
Lisa J. Merlo, (Ph.D.)^d, Mark S. Gold, (M.D.)^d

^a*Institute for Behavior and Health, Rockville, MD, USA*

^b*Treatment Research Institute, Philadelphia PA, USA*

^c*Chestnut Health Systems, Bloomington IL, USA*

^d*Department of Psychiatry, University of Florida, Gainesville, FL, USA*

Received 22 October 2007; received in revised form 4 January 2008; accepted 8 January 2008

Abstract

A sample of 904 physicians consecutively admitted to 16 state Physicians' Health Programs (PHPs) was studied for 5 years or longer to characterize the outcomes of this episode of care and to explore the elements of these programs that could improve the care of other addicted populations. The study consisted of two phases: the first characterized the PHPs and their system of care management, while the second described the outcomes of the study sample as revealed in the PHP records. The programs were abstinence-based, requiring physicians to abstain from any use of alcohol or other drugs of abuse as assessed by frequent random tests typically lasting for 5 years. Tests rapidly identified any return to substance use, leading to swift and significant consequences. Remarkably, 78% of participants had no positive test for either alcohol or drugs over the 5-year period of intensive monitoring. At post-treatment follow-up 72% of the physicians were continuing to practice medicine. The unique PHP care management included close linkages to the 12-step programs of Alcoholics Anonymous and Narcotics Anonymous and the use of residential and outpatient treatment programs that were selected for their excellence. © 2009 Elsevier Inc. All rights reserved.

Keywords: Addiction treatment; Substance use disorders; Physicians health programs

1. Background

One of the major public health achievements of the past half century has been the creation of a system of specialty treatment programs for persons with alcohol- and other drug-related problems. Although the treatment efforts for those with substance use disorders (SUDs) in this country have deep historical roots, the replicable models upon which the modern treatment system was built all emerged between 1944 and 1970. These models included outpatient alcoholism clinic models pioneered in Connecticut (1944) and Georgia (1953); the short-term residential/inpatient "Minnesota Model" of alcoholism treatment developed at Pioneer House, Hazelden, and Willmar State Hospital (1948–1950), the long-term therapeutic community for the treatment of

drug addiction (1958), and methadone maintenance (1964; see White, 1998, and Musto, 1999, for more details). With the exception of the alcoholism clinics and methadone maintenance, treatments were delivered in hospital or residential settings and employed multiple, intensive group and individual counseling sessions often in marathon sessions, designed to break tenacious resistance to the admission of loss of control and to foster a willingness and commitment to sustained abstinence and broader behavioral change.

The movement to treat instead of simply punish addiction problems was strongest in the early 1970s, when the infrastructure of modern addiction treatment emerged, based predominantly on two events. The first was the return of a large number of Vietnam era veterans with addiction problems and the link of heroin to a rapid rise in serious crime. This produced a federal, state, and local partnership that provided the funds to plan, build, staff, operate, and evaluate community-based addiction treatment programs

* Corresponding author.

E-mail address: TMcLellan@tresearch.org (A.T. McLellan).

throughout the United States. The second event involved policy changes within insurance companies that provided reimbursement for alcoholism treatment under private health insurance—a shift that spawned the rapid spread of private, hospital-based, and free-standing alcoholism treatment programs (White, 1998). These changes marked a shift in the nation's long-standing strategy of "supply reduction" (law enforcement) to a more balanced strategy that included "demand reduction" (primary prevention, early intervention, and treatment). This policy shift was manifested in the creation of the National Institute on Alcohol Abuse and Alcoholism (1970), the White House Special Action Office for Drug Abuse Prevention (1971), and the National Institute on Drug Abuse (1973).

The shift to include a major investment in the treatment of addiction faced substantial skepticism from the beginning, not just from law enforcement but also from within the health care field. There was skepticism about the value of this policy shift (e.g., treatment policies might signal permissiveness and spawn greater use), about the effectiveness of treatment (e.g., significant posttreatment relapse rates were widely perceived to indicate the failure of treatment), and about the wisdom of diverting scarce health care resources to these disorders (see Newcomb, 1992). Because of these still-enduring questions, the addiction treatment field was pushed to produce evidence for the effectiveness of existing treatments for addiction and to develop new treatments. In turn, the science of addiction medicine, particularly over the past decade, has focused as never-before on "evidence-based" evaluations of both prevention and treatment and on the development of new evidence-based medications, therapies, and interventions (e.g., Van den Brink & Haasen, 2006).

After the rapid expansion of substance abuse treatment in the 1970s, and early 1980s, the mid-1980s brought managed care, and other cost-containment efforts produced shifted the design of addiction treatment from a predominantly hospital and residential treatment model to a predominantly outpatient system of care. This change occurred throughout health care but was most pronounced in the treatment of addictions (see Institute of Medicine [IOM], 2006; Mechanic et al., 1995). By the beginning of the 21st century, the addiction treatment system was still using most of the same original group and individual therapy methods originated in the 1950s—but changes in national priorities, cost consciousness throughout health care, and specific public dissatisfaction with addiction treatment left the nation's substance abuse treatment system predominately outpatient (80%+), very short term (less than 1 month of care), with little clinical supervision for counselors and few objective checks on continued substance use (e.g., urine testing) and on the effectiveness of treatment (see IOM, 2006; McLellan et al., 2003). The early innovation and competition for excellence in addiction treatment was replaced by a largely neglected, underfunded, and poorly led treatment system that focused more on minimizing costs than supporting long-term recovery.

The recent focus on recovery as a definition of success that goes beyond just drug abstinence has led to new questions on the old issue of the efficacy of treatment for SUDs (see Betty Ford Institute Consensus Panel, 2007). Just how good can the treatment of SUDs be, not just during treatment but over the course of extended periods? What is the highest standard of success in the promotion of recovery? What can be learned from those best practices that can enhance mainstream addiction treatment?

1.1. Treatment of addicted physicians

Within this context, our small group decided to examine a relatively new form of care management that had demonstrated effectiveness with an especially significant group of patients, namely, addicted physicians. This population attracted our interest for three important reasons. First, addicted physicians represent a critical population from both public health and public safety perspectives. Despite the fact that physicians commonly have more financial and personal supports than most other segments of the addicted population, their occupations place them at almost continual exposure to drugs of abuse and thus at an elevated risk for relapse. Further, substance abuse among physicians has been associated with suicide (Roy, 1985; Simon, 1986). As a result, this population may represent both a particularly difficult and a particularly important challenge for addiction treatment. The second reason for our interest is that a distinctive form of treatment management has been developed for addicted physicians, in part because of the special importance and problems associated with this group. Specifically, this approach appeared to combine many of the elements of effective care derived from research and delivered in a context of combined social support for the addicted patient with vigorous contingency management characterized by meaningful consequences for failure to comply with the treatment (see below). This form of care management is conducted by state-level Physicians' Health Programs (PHPs), a unique institution devoted to the twin goals of protecting the public and saving the careers and lives of addicted physicians. The final reason for our interest was the fact that favorable results had been reported for physicians treated and monitored within these PHPs. Specifically, addicted physicians treated within the PHP framework have the highest long-term recovery rates recorded in the treatment outcome literature: between 70% and 96% (Domino et al., 2005; Gastfriend, 2005; Gold & Aronson, 2005; Smith & Smith, 1991; Talbott, Gallegos, Wilson, & Porter, 1987).

For these reasons, the PHPs appeared to represent one of the most sensible and evidence-based approaches to addiction currently available. We reasoned that an examination of this novel care management approach might provide suggestions for optimally organized and delivered addiction treatment—real-world treatment at its best. If there were clear evidence of positive results from this form of care, the findings might provide guidance for improving mainstream treatment efforts.

Thus, beginning in 2005, researchers from the Institute for Behavior and Health (DuPont) and the Treatment Research Institute (McLellan) initiated collaboration with the Federation of State Physician Health Programs (FSPHP; Skipper and Carr) to study the PHP supervised treatment of addicted physicians. The study, funded by the Robert Wood Johnson Foundation, was the first national study of these distinctive programs. It had two phases. The first investigated the structure and function of the PHPs, and the second phase studied the outcomes over 5 or more years of 904 physicians drawn from 16 state PHP programs. Findings from Phase I have been presented at the 2006 and 2007 meetings of the American Society of Addiction Medicine and at the 2007 meeting of the FSPHP, as well as being the focus of a publication for addiction counselors (White, DuPont, & Skipper, 2007). In this article, we summarize some of our Phase II findings and speculate on the implications of these findings for the care of other patients with SUDs.

1.2. The PHP model

Before describing our findings, it is important to understand what PHPs are and what they are not. Surprisingly, they are *not* addiction treatment programs. Instead, PHPs provide active care management for, as well as monitoring and supervision of, physicians who have signed formal, binding contracts for PHP participation (generally extending for 5 years). The extended period of PHP care most often begins with intervention followed by evaluation and intensive residential and/or outpatient substance abuse treatment. Although time spent in formal treatment varies based on the individual's evaluation and unique needs, throughout the entire period of PHP care, all participants receive active monitoring and care management from their PHP usually including care for comorbid medical and psychiatric disorders.

The PHP contracts offer support and, most often, a temporary safe haven for physicians who are typically in jeopardy or under pressure from others due to problems related to SUD. The PHPs work to develop and maintain a close working relationship with their state medical licensing boards. The boards often accept the care of the PHP in lieu of imposing disciplinary action for physicians, but with the stipulation that failure to adhere to the PHP's treatment recommendations and/or return to the use of alcohol or other drugs will lead to referral of the physician back to the licensing board for disposition.

Importantly, the contracts typically stipulate intense and ongoing treatment accompanied by regular monitoring of their substance use and addiction-related behaviors through random drug testing as well as unscheduled work site visits or work site monitors for extended periods—typically 5 or more years. These physicians are also typically seen at weekly self-help *Caduceus* meetings. The treatment, supervision, and monitoring plans for these physicians are individualized around a core approach that dominates the PHP model (Merlo & Gold, 2008a; Pomm & Harmon,

2004). Physicians who engage fully in treatment, comply with their contractual agreement, and provide negative drug tests indicating no alcohol or nonmedical drug use may depend upon these PHP records for support and even PHP advocacy with their licensure boards and other entities. On the other hand, physicians who refuse the terms of the contract and/or are found to continue substance use risk report to their boards, which may result in loss of their licenses.

Following the signing of a PHP contract and after a full evaluation, most physicians engage in formal addiction substance abuse treatment. All PHPs share a complete abstinence approach to the treatment of addiction. Physician participants must agree to total abstinence as a treatment goal, and as will be seen, adherence to this goal is assessed repeatedly throughout the ensuing prolonged monitoring. Most PHPs operate under the principles espoused by Alcoholics Anonymous (AA), Narcotics Anonymous (NA), and other 12-step programs, and virtually all physicians are expected to attend AA, NA, or other 12-step meetings. The physician is responsible for the costs of treatment, urine monitoring, and aftercare conditions such as seeing a therapist or a psychiatrist.

The first phase of PHP care typically begins with 3 months of residential or intensive outpatient care in a specialty treatment program. Commonly, physicians withdraw from medical practice during this initial period of addiction treatment. Participating physicians are given a choice of treatment providers, but generally, the choices are limited to a few specific addiction treatment programs with which the PHP has had extensive, successful experiences over many years. The fact that the PHPs have an arm's length relationship with the treatment providers appears to be important. The PHP selects treatment programs and other service providers (e.g., organizations that provide urine monitoring the physicians) that the PHP trusts to provide excellent services. If there is evidence of slippage in the performance of a particular treatment program or other service provider, it can be removed from the list of approved providers. Even the hint of such a "delisting" by a PHP can motivate providers to make meaningful improvements in their care.

The second phase of formal treatment is continued, less-intensive outpatient addiction treatment (often two to three meetings per month) for 3 to 12 months, and for many, additional personal therapy for comorbid medical or mental health problems, although the treatment experience varies somewhat among PHPs and is tailored to the individual physician patient's needs. Families are encouraged to be actively involved in this care. Families are coached on how to support recovery as well as how to manage their own codependency and associated recovery. Physicians often resume practice during this phase of care under close supervision by the PHP.

Indeed, it is following treatment that PHPs exercise one of their more distinctive functions—intensive random drug and alcohol testing coupled with compliance monitoring and support. The usual pattern of testing of observed urine

specimens, analyzed for an extended panel of 20 drugs or more, including alcohol. Usually, participating physicians call a telephone number each morning of the work-week to see if they are to be tested that day. The yes-or-no decision is made by random computer assignment over the course of 5 years or longer. The frequency of testing generally is greater at the beginning of the contract period (weekly or twice weekly) and lesser at the end of PHP monitoring (20/year), unless there is evidence of noncompliance or relapse, in which case the frequency of drug testing is increased. Monitoring over the 5 years of the typical PHP contract is not confined to drug testing but typically also involves assessment of the physicians' work environments and compliance with their specific monitoring contract plan.

The management of relapses, and even the definition of relapse, bears careful attention. "Relapse" certainly includes any use of alcohol or other drugs used nonmedically, but it also includes failure to attend treatment sessions and other signs of noncompliance or even lying about some aspect of care or recovery. It is important and controversial that initial relapses generally do not lead to termination from PHP care and do not always result in reporting to the medical licensing board. This is because of the expansive definition of relapse and the many circumstances under which it may occur. A relapse may be failure to attend an AA meeting, failure to report promptly for a drug test, or evidence that the participant has been lying about participation in treatment. Even frank substance use may be drinking a glass of wine at a wedding or a beer following golf. Although all of these are considered clinically important, these particular behaviors do not place patients in jeopardy. However, if there is evidence of relapse under patient care conditions (or even during an on-call period), there often is a report to the boards. Regardless of the level of the relapse episode, these typically lead to an additional evaluation and usually to intensified treatment and monitoring. In other words, PHPs set a high standard of expectation, and instead of casting out the participants who relapse, the PHPs pull them in closer to give them more care and more monitoring to ensure the relapse or relapse behavior is in remission.

It is obvious that the case management provided by the PHP is very different from the typical, managed care, cost-containment approach to case management. The PHPs are not involved in the financial aspects of addiction treatment. This separation reinforces the two standards the PHPs uphold when making decisions about the care of participating physicians: first, they are patient-safety focused, and second, they promote lifelong recovery for the physician. Neither of these standards is compromised by financial or other conflicts of interest for the PHP.

A case management system similar to the PHP model has been used for other specific and limited work-related populations, including commercial airline pilots and lawyers, as well as other health care professionals, including nurses, dentists, and veterinarians—many of whom are also monitored by the PHP. However, the largest population

subject to this model of care is physicians, who were also one of the first groups to use this approach. Within PHPs, this model of care management is no longer limited to those with SUDs. Many PHPs now apply similar approaches to the management of other disorders that threaten the physician's health and practice, including physical and mental health problems and a variety of other behavioral problems and disorders. However, the one condition for which all PHPs manage care is addiction, and the one population they all serve is physicians.

2. Selected results

Our study was a minimum 5-year, retrospective, intent-to-treat analysis of all physician participants admitted to 16 PHPs that participated in the national survey evaluation (Audrey, cite Phase I article here). All physicians admitted to these programs from September 1, 1995, through September 1, 2001, were followed through inspection of available laboratory and chart records throughout the duration of this episode of PHP care management, typically a 5-year or longer period. The design of the study and all data collection and patient protection procedures were reviewed and approved by the Institutional Review Board of the Treatment Research Institute. Thus, our sample was composed of consecutively admitted physicians who had entered into a PHP contract at least 5 years prior to the onset of the study.

2.1. Physician characteristics

The 904 physician participants enrolled in the 16 participating PHPs were predominantly male (86%). The average participant was 44 years old and married (63%).

Five medical specialties each represented more than 5% of the total number of physician patients: family medicine (20%), internal medicine (13%), anesthesiology (11%), emergency medicine (7%), and psychiatry (7%). The primary drugs of choice reported by these physicians were alcohol (50%), opiates (33%), stimulants (8%), or another substance (9%). Fifty percent reported abusing more than one substance, and 14% reported a history of intravenous drug use. Seventeen percent had been arrested for an alcohol- or drug-related offense, and 9% had been convicted on those charges. Thirty-nine percent had a prior experience in addiction treatment, and 14% had experienced disciplinary action by their licensing agency prior to this episode of care.

2.2. PHP enrollment

Fifty-five percent of enrolled physicians were formally mandated to enter the PHP by a licensing board, hospital, malpractice insurance company, or other agency. It is likely that the remaining 45% of enrollees were also mandated—but informally—by families, colleagues, employers, or a

combination, as self-referral to addiction treatment is as uncommon among physicians as it is in the general population. All physicians were monitored as a standard part of their contract. Most physicians (88%) met diagnostic criteria for substance dependence, and most of these had a minimum monitoring period of 5 years. The small proportion of physicians (10%) diagnosed with alcohol or substance abuse usually received shorter-term contracts (6 months–5 years) with the stipulation that a positive drug test result would prompt further evaluation often leading to formal treatment and monitoring. The remaining physicians in the sample (2%) included those who had voluntarily re-signed a continuing monitoring agreement following successful completion of an earlier PHP contract.

2.3. Formal treatment

Eighty-one percent of the physicians received formal addiction treatment after signing monitoring contracts and thus had treatment results recorded in their PHP charts. The remaining 19% included transfers from other PHPs, contract renewals, and physicians who had received formal treatment prior to the index enrollment; thus, treatment information was not available from their charts. Of the 734 physicians whose treatment was documented in PHP records, 78% had participated in formal residential or outpatient day treatment, usually at the beginning of their contracted period. These more intensive forms of standard addiction treatment often lasted 30 to 90 days (average = 72 days) and were usually followed by less-intensive outpatient treatment (one to four nights per week) for 2 to 12 additional months. Regardless of setting or duration, essentially all treatment provided to these physicians (95%) was 12-step oriented, with a goal of total abstinence from any use of alcohol and other drugs of abuse and included the expectation of continued participation in AA or other 12-step oriented posttreatment support. Ninety-four percent of the physicians referred to formal treatment successfully completed that part of their contracted obligation to the satisfaction of the monitoring PHP.

2.4. Pharmacotherapy

Use of pharmacotherapy as a component of treatment for SUDs or comorbid psychiatric conditions was uncommon. Only 1 of the 904 physicians studied was placed on methadone for an opiate-dependence problem. Naltrexone was prescribed for 46 physicians (5%) as an adjunct to treatment. About a third (32%) were prescribed an antidepressant for comorbid depression or anxiety disorders.

2.5. Supportive services

Supportive services used by these recovering physicians included AA or NA 12-step groups (92%), aftercare groups from their formal treatment programs (61%), and follow-up from the PHP monitors (53%).

2.6. Alcohol and drug testing

A key component of PHP agreements was random drug testing—typically conducted throughout the PHP contract period—with various contingencies specified in the physician's contract for failure to remain abstinent from any use of alcohol and other drugs of abuse. In this study, urine was tested in 99.2% of cases, with rare use of hair (0.2%), saliva (0.1%), or breath (0.6%) testing. About 75% of all urine sample collections were directly observed by collection personnel. In most other cases, dry room collection procedures were used. A typical drug-testing panel included more than 20 substances, such as amphetamines, barbiturates, benzodiazepines, opioids, cocaine, cannabinoids, ethyl alcohol, and often ethyl glucuronide, which has demonstrated improved sensitivity (Skipper et al., 2004). Also available was a more expanded panel that included the following: other stimulants (pseudoephedrine, ephedrine, methylphenidate, and so forth), zolpidem (Ambien), other narcotics (fentanyl and congeners, methadone, pentazocine, and so forth), ketamine, and antihistamines.

Physicians were tested on average twice a month, usually with more frequent testing at the start of the agreement period and reduced testing following periods of stable negative drug test results. For physicians with substance dependence, the average period of testing was 47 months. Physicians with substance abuse were tested on average for 29 months. About 22% of physicians had active monitoring contracts beyond the typical 5-year contract period—initiated either voluntarily or as required following a relapse. All of the monitored physicians were subject to random testing for alcohol and drug use each workday throughout their extended monitoring periods, regardless of the frequency of the testing.

2.7. PHP actions in response to positive tests or noncompliance

Across programs, the PHPs took a variety of actions in response to a positive drug test result. In part, this was due to different circumstances of the substance use. For example, drinking a glass of champagne at a wedding, while defined as a relapse and a serious occurrence, is quite different from a patient safety standpoint than intoxication while on medical duty. For the first positive test, almost all PHPs reacted clinically, with combinations of the following activities: reevaluation (54%), increased monitoring (43%), and further addiction treatment (42%). Forty-two percent of PHPs also reported such first positive tests the physician's licensing agency, hospital, or other entity, and an additional 16% initiated confidential actions, such as a nonpublic probationary period without referral to the licensing board or other agency. For those individuals who had more than one positive drug test, the same type of clinical and administrative actions were usually taken but with an increasing likelihood that the testing frequency would be increased and that the physician would be reported to the state medical licensing agency.

3. Outcomes

3.1. PHP contract completion

Of the 904 physicians in our intent-to-treat sample, 448 (50%) completed their contracted period of monitoring and were no longer monitored by the PHP at follow-up (*Completers*). Another 199 physicians (22%) either had their contracts extended beyond the original monitoring period or had signed voluntary new contracts with the PHP and were still being monitored (*Continuers*). Of these, 110 were mandated to continue in the program and 89 remained voluntarily. The remaining 257 physicians in the sample (28%) had not completed their contracts and were no longer monitored (*Noncompleters*). Among the Noncompleters, 85 had withdrawn from the program, often simultaneously retiring from medicine and/or surrendering their licenses; 69 had transferred to a PHP in another state; 48 had been removed from the program, usually with a revoked license; 33 had moved and were lost to follow-up; and 22 died while in monitoring. Two of the deaths during monitoring were substance related, and six were suicides. The PHP records revealed that another 10 physicians died after monitoring was completed, meaning that as of study completion, a total of 32 of the physicians (4% of the total sample) had died.

3.2. Alcohol and other drug use during monitoring

Table 1 summarizes the drug testing results for the three completion groups. Although the groups did not differ greatly in the length of the initial contract signed with the PHP (52–58 months on average), they varied in predictable ways on the length of time they were tested and the average number of tests per physician. Noncompleters were tested on average for about 24 months before leaving the program. During this period, they averaged 2.3 tests per month with 30% of them having at least one verified positive test for alcohol, an illicit drug, or a nonprescribed abused medication. Among the 76 Noncompleters who tested positively, about half (49%) were detected using drugs or alcohol on more than one occasion. In contrast, nearly 90% of the Completers had *no* positive drug test results during an average of 48 months of testing at a cumulative rate of 1.7 tests per month. Only 8 of the 45 Completers who had a positive test (18%) also failed a subsequent test.

Continuers, whose 64-month average testing period exceeded their average length of contract by 6 months, were the most likely to have had at least one positive test (37%). However, within this group, there were several significant differences between those who voluntarily extended their monitoring and those mandated to do so. During 64 months of testing, the Mandatory Continuers on average were tested more frequently (2.1 times per month vs. 1.7 for the Voluntaries); were much more likely to have at least one positive test (52% vs. 17%); and, among those with an initial positive test, were nearly twice as likely to have a subsequent positive (38% vs. 20%). In summary, the Voluntary Continuers had drug testing results that were similar to, if not quite as good as, those of the Completers; whereas, it appears that state licensing boards acted prudently in mandating continued monitoring for certain physicians.

3.3. Relapses affecting patient safety

Apart from recording the incidence of substance use, chart reviewers were also asked to record the conditions under which drug or alcohol use occurred. In total, 261 physicians (29%) had at least one recorded use of substances, 14 (2% of total sample) had a relapse that was documented in the context of drunken driving, and 55 (6% of total sample) had relapse episodes that “occurred in the context of medical practice.” These relapses could include being under the influence at work or while on call and therefore had the potential to adversely affect patient care.

Within these more serious relapses, we asked chart reviewers to record any mention of actual patient harm. Only one identified episode of patient harm (i.e., overprescribing) was noted. Although few frank episodes of actual or potential harm were recorded, it was not possible from these chart reviews to adequately capture other important negative consequences of the physicians’ substance use, such as exacerbation of mood disorders, professional relationship difficulties, or family problems.

3.4. Sanctions on physicians during PHP monitoring

Cumulatively, 180 physicians (20% of total) were formally reported to their board and/or oversight body, at some time during their monitoring period, for substance use or other forms of noncompliance. Some physicians were

Table 1
Drug testing results

Variables	Completers (n = 448)	Continuers (n = 199)	Noncompleters (n = 257)	Total sample (n = 904)
Contract duration (mean months)	52	58	55	54
Drug testing period (mean months)	48	64	24	45
Mean no. of drug tests	81.8	120.7	54.3	82.6
Mean no. of tests/month	1.7	1.9	2.3	1.8
Percent with at least one positive	10.3	36.7	29.6	21.7
Percent of tests that were positive	0.30 (108/36,230)	0.55 (129/23,544)	1.18 (160/13,508)	0.54 (397/73,282)

Table 2
Five- to seven-year outcomes

Outcome rated as	Completers (n = 418)	Continuers (n = 170)	Noncompleters (n = 239)	Total of rated cases (n = 827)
Successful, no major problems (%)	92.8	39.4	14.2	59.1
Successful, significant problems (%)	5.5	7.1	4.6	5.6
Benefited, did not complete (%)	0.0	16.5	28.9	12.1
Failed program, did not benefit (%)	0.0	0.6	31.8	9.3
Still being monitored (%)	0.0	36.5	0.0	8.1
Moved/transferred (%)	0.0	0.0	10.9	3.1
Other (unknown, died, etc.) (%)	1.7	0.0	9.6	2.7

reported more than once and had more than one disciplinary action taken against them. Actions taken by these agencies included limitations on practice (129 physicians), probationary agreements (130 physicians), suspension of license (94 physicians), and revocation of medical license (32 physicians). Sometimes additional agencies also became involved as an indirect result of actions taken by the state board. These actions included being reported to the National Practitioner Data Bank (121 physicians) and restriction of or loss of Drug Enforcement Administration (DEA) license (56 physicians).

3.5. PHP contract outcomes

For one of the non-mandatory chart review items, 14 of the 16 PHPs provided summary judgments of the physicians' overall outcomes for the contracts reviewed. This information was provided for 827 cases (91% of the total sample). Table 2 summarizes these outcomes by completion group type.

Nearly all of the Completers (98%) were judged to have been "fully successful" in completing this episode of care, although about 6% of this group succeeded only after experiencing some significant problems during monitoring. Only 19% of the Noncompleters were judged as having fully succeeded in the program, most of whom were physicians who transferred in good standing to another PHP. Nearly a third of Noncompleters (32%) were rated as having failed in the program without gaining benefit from their participation. However, the overall program outcome for many of the Noncompleter physicians (21%) could not be determined from the records because they had moved, died, transferred, or were otherwise lost to follow-up.

Among the Continuers group, most of the 76 Voluntary Continuers (78%) were judged to have completed the original

contract successfully, either without problem (71%) or after some problems (7%). Outcomes for the 94 Mandatory Continuers were rated as one of the following: Still in Monitoring/Can't Yet Judge (51%), Benefited/Not Completed (27%), and either Successful/No Major Problems (14%) or Successful/Significant Problems (7%). Of note, only one Mandatory Continuer was judged to have failed without benefit.

3.6. Continued medical practice

At last contact with the PHPs, 651 of the 904 physicians in the sample (72%) were licensed without restriction and actively practicing medicine. As shown in Table 3, this percentage varied depending on the physician's program completion status. Fully 91% of the Completers were practicing medicine, compared to just 28% of the Noncompleters. Among the Continuers, there was not as big a difference between Voluntary and Mandatory Continuers as was found for other outcomes. Eighty-seven percent of the 89 Voluntary Continuers were in medical practice, compared to 78% of the 110 Mandatory Continuers.

The data in Table 3 provide evidence that PHPs, working in collaboration with the state licensing agencies, are effective in helping most of the physicians in their care with SUDs remain in medical practice as long as they participate in required treatment and monitoring, remain abstinent, and utilize supportive programs. In addition, it appears that this collaboration provides an effective method for removing physicians from the medical workforce who do not maintain contract compliance and remission from the use of alcohol and drugs of abuse. About half of the Noncompleters (49%) were not practicing medicine at last contact either because they had retired, left, or suspended practice; voluntarily surrendered their license; or they had their license revoked or suspended.

Table 3
Status of medical practice

Medical status (last known)	Completers (n = 448)	Continuers (n = 199)	Noncompleters (n = 257)	Total sample (n = 904)
Working in medicine (%)	91.1	81.9	27.6	72.0
Licensed/not practicing (%)	2.9	6.0	10.1	5.6
Not licensed/suspended license (%)	2.2	6.5	31.5	11.5
Retired/left practice (%)	1.8	2.5	7.4	3.5
Died (%)	0.7	0.0	11.3	3.5
Unknown (%)	1.3	3.0	12.1	4.8

4. Implications

Results of the current intent-to-treat study demonstrated that, in general, physicians who underwent treatment for a SUD under the supervision of these 16 state PHPs had good outcomes. Specifically, of the 904 physicians followed, 72% were still licensed and practicing with no indications of substance abuse or malpractice, 5 to 7 years after signing their contracts. In contrast, the PHP process appears to have moved approximately 18% of these physicians out of the practice of medicine through loss of license or pressure to stop practice. Of the 904, 180 (19%) had a relapse episode (see broad definition) and were reported to their licensing boards. However, only 22% of these had any evidence of a second relapse—generally indicating that the intensified treatment and monitoring were successful in maintaining remission.

These results are similar to those described in previous research with physicians (Domino et al., 2005; Flaherty & Richman, 1993; Gallegos et al., 1992; Talbott et al., 1987). These replications heighten confidence in the strength of this conclusion. At the same time, the earlier reports have focused upon smaller samples of physicians and much shorter evaluation periods. The current findings come from the largest sample of addicted physicians ever followed and over the longest period.

The findings did not differ by the physician's drug of choice. Rather, physicians with alcohol use disorders displayed similar outcomes to those presenting with opioid, crack cocaine, and benzodiazepine use disorders. Physicians whose who used these drugs intravenously did as well as other physicians.

These results are similar to those described in previous research (Domino et al., 2005; Flaherty & Richman, 1993; Gallegos et al., 1992; Talbott et al., 1987) and provide support for the use of a single category of "SUD," rather than differentiating among patients based on their primary drug of choice. Further support for this idea is provided by frequency with which many individuals with SUDs use multiple substances or change their drug of choice across time. For example, in this sample, 50% of the physicians reported abusing more than one substance prior to their PHP care.

In general, physicians share some characteristics that differentiate them from the general public. However, their self-reported rates and types of substance use are similar to those of nonphysicians (although somewhat greater use of benzodiazepines by physicians; Conrad et al., 1988; Hughes et al., 1992). Although many theories have been suggested to explain the relatively high rates of addiction among physicians, the clinical reality is that this is a high-risk population for SUDs.

Physicians generally have higher incomes than the general population, making high-quality private substance abuse treatment more affordable for them. Yet, compared to the number of physicians who would benefit from a substance use intervention, they, like other populations, are generally undervalued and undertreated (Gold & Aron-

son, 2004). Physicians have greater access to drugs of abuse, at least when these substances are prescription controlled substances. A significant number of practicing and resident physicians admit to self-prescribing medications (Bennet & O'Donovan, 2001; Chambers & Belcher, 1992; Christie, Rosen, & Bellini, 1998), and this likely includes substances of abuse. Because physicians do not need to go through a "supplier" to support their nonmedical drug use, they may be more difficult to identify. In addition, physicians may be better able to hide their substance use than many other occupational groups (Domino et al., 2005). They know the common signs of abuse/dependence and are often able to maintain their alcohol and drug use without displaying these symptoms (e.g., visible injection sites, etc.). Physicians also typically develop sophisticated denial strategies, which support their SUDs. Finally, physicians are often hesitant to report suspected SUDs among their colleagues. In part, this is due to concerns about the perceived negative consequences of doing so (Farber et al., 2005). Beyond that, physicians receive little training in the identification and treatment of addictive illness and often view these illness as personal weaknesses rather than as treatable illnesses.

These characteristics put physicians at increased risk of SUDs compared to many other populations. In addition, these characteristics may delay the identification of an SUD among physicians, allowing the severity of the problem to increase over time. Indeed, physicians being referred for treatment now may be more impaired than those referred for treatment in the past (Angres et al., 2003). Most physicians with SUDs display moderate to severe problems at the time of treatment (McGovern, Angres, & Leon 1998).

Whatever the differences from other populations experiencing SUDs, it is likely that the successful treatment of physicians with SUDs has important implications for SUD treatment in general. For example, if physicians were found to have significantly better outcomes than other groups when treated for diabetes or coronary artery disease, this would be of great public health interest. Recognizing that SUDs are biological disorders with major behavioral components (just like diabetes and coronary artery disease), the relatively high level of success exhibited by physicians whose care is managed by PHP is important with respect to the potential for success in addiction treatment generally. Indeed, the observed rate of success among physicians directly contradicts the common misperception that relapse is both inevitable and common, if not universal, among patients recovering from SUDs.

In particular, we were stuck by the exceptionally low rate of positive drug test results in this large sample of individuals who had experienced uniquely intensive drug testing over uniquely long periods. Within the entire sample, there were an average of 83 drug tests done over a mean period of 54 months of PHP monitoring. Among this sample of 904 physicians participating in a PHP program, 78% of the physician participants did not have a single positive test result for either alcohol or drugs of abuse during their

prolonged period of monitoring. Overall, the positive drug testing rate was 0.54%, meaning that an average of about 1 in 200 samples was positive, even with the extended screens and the random testing used for this monitoring. These objective results are especially remarkable given the severity of the problems that the physician participants experienced with SUDs. The observed rate of positive test results was lower than that found in the U.S. Military (Bruins, Okano, Lyons, & Lukey, 2002) and far lower than found in random tests in general workplace populations (Osterloh & Becker, 1990). Further, it was completely different from what would be expected based on the rates of positive tests for nonmedical use of controlled substances typically found in patients experiencing chronic pain (Manchikanti et al., 2006) or patients with SUD (see Koenig, Denmead, Nguyen, Harrison, & Harwood, 1997). Indeed, rather than being a defining characteristic of addiction, the “inevitable relapse” may be a defining characteristic of the acute care model of biopsychosocial stabilization, which offers an opportunity for recovery initiation but lacks the essential ingredients to achieve recovery maintenance. If the key ingredients of the PHPs—particularly ongoing monitoring for this chronic illness linked to meaningful consequences—were universally available, we might find that relapse was far from inevitable and that active addiction careers could be significantly shortened and stable recovery careers extended.

Thus, the next step in improving SUD treatment for all is to deconstruct the PHP treatment package and identify the “essential ingredients” to long-term recovery maintenance. The individual elements that comprise the PHP model are potentially important for improving treatment for other patient populations; in addition, it is possible that they could be adapted to bring benefits to many other treatment populations. With this in mind, we single out five key elements as worthy of consideration for wider dissemination in substance abuse treatment:

1. *Contingency management aspects of PHP care management.* For physicians enrolled in a PHP program, there are both significant positive (continued ability to practice medicine; reduction of pending charges against them) and significant negative consequences (loss of license, professional disgrace) to noncompliance with PHP treatment and monitoring requirements. There is a robust and rapidly growing body of knowledge supporting the view that addiction treatment programs that use “socially sanctioned coercion mechanisms” (Nace et al., 2007), by providing consequences for early termination of treatment or positive drug tests results, strongly improve the outcome in addiction treatment (e.g., Festinger et al., 2002; Fowlie, 2005; Monahan, 2003; Simpson & Joe, 1993).

Supporting the significant role of positive and negative behavioral contingencies is the example of Drug Courts (see Belenko, DeMatteo, & Patapis, 2007; Marlowe & Wong, 2007). In these courts,

offenders charged with drug-related offenses may have those charges expunged if they complete a year of supervised addiction treatment accompanied by regular, random drug testing under the supervision of the court—but face immediate, incarceration or other sanctions for failing to abide by the stipulations of the treatment and the monitoring. Although there are few similarities in background, social supports, or social status between addicted physicians supervised by PHPs and drug-related criminal offenders supervised by drug court judges, both have significant positive and negative contingencies applied to their behaviors, and both have outcomes that are far better than general addicted populations treated without these contingencies in standard addiction treatment programs (Kliner, Spicer, & Barnett, 1980). The PHP model provides far more meaningful and sustained consequences than any other model of contingency management.

2. *Frequent random drug testing.* Drug testing is seldom used in substance abuse follow-up for the general population (see Koenig et al., 1997; McLellan et al., 2003). When drug testing is used, the test results are seldom linked to meaningful consequences and drug testing is, to our knowledge, never used for such long periods or with the intensity that typifies PHP case management. Recovering physicians frequently report that knowing they are subject to drug screening linked to meaningful consequences is a powerful motivator to avoid using substances of abuse. In fact, it has been suggested that random urine screening actually serves as a behavioral intervention for the recovering physicians, reminding them of the potential consequences of substance use (Jacobs, Repetto, Vinson, Pomm, & Gold, 2004) and may be the most effective component of treatment. In the State of Florida, the physician in early recovery calls an 800 number every day during the initial phase of his or her contract and is randomized to drug test or no test. Thus, evidence of relapse is kept current. Failure to call in for randomization is a prognostic indicator of impending relapse (Jacobs et al., 2004). Such a calling system may be a form of telehealth therapy at no cost to the State. In addition, research has demonstrated that the addition of drug-testing to recovery monitoring can improve outcomes, with 96% of physicians who were tested maintaining sobriety, compared to only 64% of physicians who were not routinely tested (Shore, 1987).
3. *Tight linkage with the 12-step programs and with the abstinence standard espoused by these fellowships.* The PHP programs are abstinence-based, meaning that they require abstinence from alcohol and all non-medical use of mood-altering drugs, not just the physician’s drug(s) of choice. For example, physicians in PHP care for opioid abuse are required to remain abstinent from all mood-altering substances, including alcohol, for the duration of their extended contracts.

Research has repeatedly demonstrated the efficacy of the 12-step approach for physicians with SUDs (Galanter et al., 1990; Gallegos et al., 1992; Lloyd, 2002; Moos & Moos, 2005) and participation in a 12-step group, such as AA, is associated with improved self-efficacy for abstinence (Bogenschutz, Tonigan, & Miller, 2006). Combining AA and professionally directed addiction treatment has also been found to generate better recovery outcomes than is found in participating only in AA or only in treatment (Fiorentine & Hillhouse, 2000).

4. *Active management of relapses by intensified treatment and monitoring.* Relapses do not typically lead to discharge from PHP care, at least not initially. They do routinely lead to intensive reevaluations of the treatment plans and to the implementation of additional care. For example, in this sample, most physicians who provided a urine specimen positive for drug use were reevaluated. In addition, almost half of these physicians were required to undergo additional treatment, more frequent drug testing, or a combination of the two. Other research has shown that physicians who experience a relapse are generally able to reenter recovery with booster treatments (Lloyd, 2002).
5. *A continuing care approach.* Treatment, support, and monitoring in traditional addiction programs lasts 30 to 90 days. This is rarely accompanied by involvement of family or significant others. The formal treatment is typically followed by passive referral to AA meetings but no continued aftercare, support, or monitoring. It is significant in this regard that although 1-year post-treatment relapse rates are typically 50% to 60%, more than 80% of those who relapse within a year do so within the first 2 to 3 months following discharge from formal treatment (Hubbard, Flynn, Craddock, & Fletcher, 2001). Our data support the conclusion that SUDs are chronic illnesses that are best managed with ongoing care just as are other serious, chronic illnesses. Specifically, acute care-oriented, short-term approaches have little evidence of long-term success in the treatment of SUDs. There are many novel ways of extending formal care with telephone-based or Internet-based monitoring and support (Betty Ford Center in the News, 2006; Hazelden, 2007; McKay, Lynch, Shephard, & Pettinati, 2005) and regular home visits (Dennis, Scott, & Funk, 2003) that have been shown to reduce relapse rates and enhance long-term recovery rates. The PHPs have formalized this element of sustained continuity of care and focused much of their professional resources on sustaining therapeutic contact over 5 years or longer.
6. *Focus on lifelong recovery.* Mere abstinence from the use of alcohol and drugs of abuse is seldom sufficient for PHP care. Rather, the physicians are supported and encouraged to significantly improve the quality of their lifestyles, both in their personal lives and in their

practice of medicine. This support and encouragement are considered an important aspect of PHP care. Thus, care management for physicians with SUDs generally includes comprehensive assessment (including co-occurring medical and psychiatric conditions) and a wide spectrum of services including educational lectures, individual therapy, group therapy, and family therapy, as well as a performance-based assessment of competency to return to work and participation in continuing medical education as necessary (Merlo & Gold, 2008b). Lifestyle and practice modifications resulting from PHP participation can also include a change in medical specialty, prescribing restrictions, external monitoring of prescribing practices, or a change in institutional affiliation or work schedule.

Each of these six elements of PHP care management has potentially wide applicability within mainstream addiction treatment. However, one of the challenges in implementing this new evidence regarding potential improvements to recovery monitoring is finding ways to integrate these elements into other treatment models with other patient populations. Taken as a whole, these elements insure a comprehensive assessment, promote development of a comprehensive treatment plan, enhance engagement and long-term retention in treatment, increase the initial dose of treatment services, extend the duration and increase the intensity of posttreatment monitoring and support, provide assertive linkage to recovery communities and esteem-enhancing recovery role models (e.g., other physicians in recovery via Caduceus Meetings and International Doctors in Alcoholics Anonymous [IDAA]), and enhance the quality of life of physicians in recovery. In the face of potential alcohol or other drug use, PHPs also provide a mechanism for reintervention that prevents an escalation in problem severity and preserves the recovery capital that has been developed through earlier participation in the PHP. The early intervention mechanism promotes long-term personal recovery and also serves as a safety net for the protection of public safety.

Most mainstream addiction treatment centers do not have physician administrators in charge of the programs, and many programs operate independently, involving little or no collaboration/communication with other programs. The treatment programs are generally not stable or well structured, and few treatment programs appear to have the capacity for innovation and change, even over long periods. On the other hand, the PHP programs are mostly headed by hands-on physicians who meet together with heads of the other PHP programs on a regular basis. This unique physician leadership community ensures both a high level of collaboration and also a spirited competition to improve the care of their physician patients.

The treatment programs and other service providers (including laboratories that conduct drug tests) that are used by the PHPs are an elite group chosen for the excellence of their care and services. The leaders of the PHPs communicate

with each other about best practices, and their own experiences with providers over many years shape their choices. Treatment programs seek to be selected by PHPs because this is recognized as a mark of distinction within the treatment field.

The PHP programs continue to actively innovate as they seek to improve their performances. For example, the PHP programs included in this study are increasingly using intensive outpatient treatment rather than relying exclusively on residential treatment for the initial treatment experience. Based on recent research (e.g., Kintz, Villain, Dumestre, & Cirimele, 2005), they are also experimenting with the use of hair and oral fluids testing, as well as ethyl glucuronide (EtG) testing (Skipper et al., 2004) for recent exposure to alcohol, to extend the more traditional role of urine drug testing. Similarly, the PHPs seldom use the very narrow panel of abused drugs that is typical of most urine testing in mainstream drug treatment. In addition, many PHPs are now reaching out to serve nonphysician populations and finding ways to integrate their model into other treatment programs in their communities.

On a related note, it is important to recognize that a significant minority of PHP directors are physicians who are themselves in recovery from SUDs. The presence of physicians within the leadership of PHP system of care who are open about being in recovery affects the dynamics of this group. The recovering physicians typically bring to the entire PHP system both “toughness” and sensitivity to the extended and complex process of recovery. This helps them to provide leadership, and it also inspires and validates the PHP movement itself. Indeed, the presence of physician leaders who are in recovery may help to account for the observation that PHPs, in spite of addressing problems other than SUDs, have maintained their focus on and competencies related to addiction recovery; whereas, many other work-based systems of interventions, such as the employee assistance field, have experienced a dilution of their focus and expertise in this important area of health care (White, 2000).

Although PHPs are not unique in the critically important roles played by others in the lives of participants, their care management is remarkably different from most other environments in which treatment occurs. Those with SUDs enter treatment when something happens in their lives that convinces them that they must stop their drug use. Often it is actions of those around the users—family members, colleagues, employers, agents of the criminal justice system, physicians, and others—that convince them of the need to stop their alcohol or drug use. The actions of others play critically important roles in the treatment of all people with SUDs. Left on their own, the substance-dependent population is seldom able to interrupt the pattern of repeated drug use, especially after the behavior is well established. In most treatment settings, there are few contingencies, and those that exist are usually brief, for relapse to active substance use. Even when there are contingencies for relapse, people

around the drug users rarely have the means of identifying a return to drug use, especially in the early states of a relapse.

The PHP care management of the environment in which treatment and recovery takes place is radically different from the experience of virtually all other populations of people with SUDs. In PHP care management, the standard of no use of alcohol or other drugs of abuse is not only unequivocal, it is enforced by drug testing that is random, frequent, and comprehensive. In addition, the consequences of returning to alcohol and/or other drug use may be serious. Perhaps most important, PHP monitoring with consequences is prolonged, generally lasting 5 years or longer. It is administered in a program that is widely known to produce outstanding outcomes. These factors combine to make participation acceptable, and even attractive, for physicians with SUDs.

In addition to the contingency management used by PHPs, the treatment/monitoring provided for physician participants is state of the art. Like the monitoring, the treatment in the PHP model is prolonged, intensive, and of high quality. We know of no other group of people with SUDs who have similar experiences, except for the increasing use of this model in a few other populations including commercial pilots, attorneys, and other health care workers. Certainly, Drug Courts, good as they are and as much as they use monitoring and contingency management, do not rise to the level of drug testing and the quality of treatment/monitoring that are commonly received under PHP care management. Beyond these differences, the maximum duration of Drug Court care is 1 year, not long enough to maximize the benefits of this promising model of care management. The active management of the environment in which drug use and recovery take place is part of a major rethinking of demand reduction that has broad implications for both prevention and treatment (DuPont, 1999).

It is noteworthy that data from the present study provide evidence that some components of mainstream addiction treatment may not be necessary. For example, although the overwhelming majority of physician participants (78%) in this study benefited from their participation in the program, pharmacotherapy was generally not a component of treatment. Rather, only 5% of the physicians undergoing treatment for SUDs were prescribed Naltrexone, and only 1 (0.001%) was prescribed methadone, although one third of the physicians in this study were primary opioid users. Thus, although previous research has demonstrated that the use of Naltrexone for physicians with SUDs can be successful (Gold, Extein, Perzel, & Annitto, 1982; Washton, Gold, & Pottash, 1984), it is possible that the use of medications to augment behavioral treatment of SUD is unnecessary for most patients, including those with opioid dependency under certain conditions. In addition, voluntary participation in treatment may not be necessary to achieve recovery. Although the data from this study show that individuals who continued participation voluntarily did better than those who were mandated to continue, there were a significant

number of mandated participants who benefited from continued PHP involvement. Our findings suggest that greater efforts should be made to encourage voluntary participation in treatment and monitoring to achieve the best outcome; however, mandatory participation is without question better than no participation.

In conclusion, the current findings, which demonstrate high rates of success among physicians suffering from SUDs, provide further evidence that addiction is a serious and chronic disorder that can be treated successfully over extended periods in a large percentage of people. At least under the contingencies that characterize the PHP programs, the SUDs need not be viewed as inevitably leading to relapse and prolonged addiction careers. On the basis of these findings, there is reason for renewed optimism among individuals with SUDs and their families. The current data replicate earlier findings reported by researchers and clinicians in other PHP programs and States (e.g., Gallegos et al., 1992; Gold, Pomm, Kennedy, Jacobs, & Frost-Pineda, 2002; Shore, 1987). It appears that physician treatment works and that it works in all States for all addictions regardless of the drug of choice and for physicians of any age.

References

- Angres, D., et al. (2003). Psychiatric comorbidity and physicians with substance use disorders: A comparison between the 1980s and 1990s. *Journal of Addictive Diseases*, 22, 79–87.
- Belenko, S. B., DeMatteo, D. S., & Patapis, N. S. (2007). Drug courts. In A. R. Roberts, & D. W. Springer (Eds.), *Forensic social work in juvenile and criminal justice: An evidence-based handbook*. (pp. 256–281). Springfield, IL: Charles C. Thomas Pub., Ltd.
- Bennet, J., & O'Donovan, D. (2001). Substance misuse by doctors, nurses and other healthcare workers. *Current Opinion in Psychiatry*, 14, 195–199.
- Betty Ford Center in the News. (2006). *Focused continuing care: One-year, extended care at Betty Ford Center*. Retrieved from <http://www.bettyfordcenter.org/news/innews/narticle.php?id=16>.
- Betty Ford Institute Consensus Panel. (2007). What is recovery? A working definition from the Betty Ford Institute. *Journal of Substance Abuse Treatment*, 36, 413–423.
- Bogenschutz, M. P., Tonigan, J. S., & Miller, W. R. (2006). Examining the effects of alcoholism typology and AA attendance on self-efficacy as a mechanism of change. *Journal of Studies on Alcohol*, 67, 562–567.
- Bruins, M. R., Okano, C. K., Lyons, T. P., & Lukey, B. J. (2002). Drug-positive rates for the Army from fiscal years 1991 to 2000 and for the National Guard from fiscal years 1997 to 2000. *Military Medicine*, 167, 379–383.
- Chambers, R., & Belcher, J. (1992). Self-reported health care over the past 10 years: A survey of general practitioners. *British Journal of General Practice*, 42, 153–156.
- Christie, J., Rosen, I., Bellini, L., et al. (1998). Prescription drug use and self-prescription among resident physicians. *Journal of the American Medical Association*, 280, 1253–1255.
- Conrad, S. E., Hughes, P. H., Baldwin, D. C., et al. (1988). Substance use by fourth-year students at 13 U.S. medical schools. *Journal of Medical Education*, 63, 747–758.
- Dennis, M. L., Scott, C. K., & Funk, R. (2003). An experimental evaluation of recovery management checkups (RMC) for people with chronic substance use disorders. *Evaluation and Program Planning*, 26, 339–352.
- Domino, K. B., Hornbein, T. F., Polissar, N. L., Renner, G., Johnson, J., Alberti, S., & Hanks, L. (2005). Risk factors for relapse in health care professionals with substance use disorders. *Journal of the American Medical Association*, 293, 1453–1460.
- DuPont, R. L. (1999). Biology and the environment: Rethinking demand reduction. *Journal of Addictive Diseases*, 18, 121–138.
- Farber, N. J., et al. (2005). Physician's willingness to report impaired colleagues. *Social Science & Medicine*, 61, 1772–1775.
- Festinger, D. S., Marlowe, D. B., Lee, P. A., Kirby, K. C., Bovasso, G., & McLellan, A. T. (2002). Status hearings in drug court: When more is less and less is more. *Drug and Alcohol Dependence*, 68, 151–157.
- Fiorentine, R., & Hillhouse, M. (2000). Drug treatment and 12-step program participation: The additive effects of integrated recovery activities. *Journal of Substance Abuse Treatment*, 18, 65–74.
- Flaherty, J. A., & Richman, J. A. (1993). Substance use and addiction among medical students, residents, and physicians. *Psychiatric Clinics of North America*, 16, 189–197.
- Fowlie, D. G. (2005). Doctors' drinking and fitness to practice. *Alcohol and Alcoholism*, 40, 483–484.
- Galanter, M., et al. (1990). Combined Alcoholics Anonymous and professional care for addicted physicians. *American Journal of Psychiatry*, 147, 64–68.
- Gallegos, K. V., Lubin, B. H., Bowers, C., et al. (1992). Relapse and recovery: Five to ten year follow-up study of chemically-dependent physicians. The Georgia experience. *Maryland Medical Journal*, 41, 315–319.
- Gastfriend, D. R. (2005). Physician substance abuse and recovery: What does it mean for physicians—and everyone else? *Journal of the American Medical Association*, 293, 1513–1515.
- Gold, M. S., & Aronson, M. D. (2004). *Treatment of Alcohol Abuse and Dependence*. Cambridge, MA: Harvard University UpToDate (CD ROM educational program).
- Gold, M. S., & Aronson, M. (2005). Physician health and impairment. *Psychiatric Annals*, 34, 736–740.
- Gold, M. S., Extein, I., Perzel, J., & Annitto, W. J. (1982). Naltrexone in the treatment of physician addicts. *American Psychiatric Association*, 95, 275.
- Gold, M. S., Pomm, R., Kennedy, Y., Jacobs, W., & Frost-Pineda, K. (2002). *5-Year state-wide study of physician addiction treatment outcomes confirmed by urine testing*. Orlando, FL: Society for Neuroscience.
- Hazelden to launch unique continuing care program. (2007). Retrieved from <http://www.hazelden.org/web/public/vcsum5contcare.page>.
- Hubbard, R. L., Flynn, P. M., Craddock, G., & Fletcher, B. (2001). Relapse after drug abuse treatment. In F. Tims, C. Leukfield, & J. Platt (Eds.), *Relapse and Recovery in Addictions* (pp. 109–121). New Haven: Yale University Press.
- Hughes, P. H., Brandenburg, N., Baldwin, D. C., et al. (1992). Prevalence of substance use among US Physicians. *Journal of the American Medical Association*, 267, 2333–2339.
- Institute of Medicine. (2006). *Improving the quality of health care for mental and substance-use conditions*. Washington, DC: National Academy Press.
- Jacobs, W. S., Hall, J. D., Pomm, R., et al. (2004). Prognostic factors for physician addiction outcomes at five years. American Society of Addiction Medicine Annual Medical-Scientific Meeting; 2004 April 24; Washington DC.
- Jacobs, W. S., Repetto, M., Vinson, S., Pomm, R., & Gold, M. S. (2004). Random urine testing as an intervention for drug addiction. *Psychiatric Annals*, 34, 781–784.
- Kintz, P., Villain, M., Dumestre, V., & Cirimele, V. (2005). Evidence of addiction by anesthesiologists as documented by hair analysis. *Forensic Science International*, 153, 81–84.
- Kliner, D., Spicer, J., & Barnett, P. (1980). Treatment outcome of alcoholic physicians. *Journal of Studies on Alcohol*, 41, 1217–1219.
- Koenig, L., Denmead, G., Nguyen, R., Harrison, M., & Harwood, H. (1997). The Costs and Benefits of Substance Abuse Treatment. NTIES. National Treatment Improvement Evaluation Study. Final Report. Substance Abuse and Mental Health Services Administration.
- Lloyd, G. (2002). One hundred alcoholic doctors: A 21-year follow-up. *Alcohol and Alcoholism*, 37, 370–374.

- Manchikanti, L., Manchukonda, R., Pampati, V., Damron, K. S., Brandon, D. E., Cash, K. A., & McManus, C. D. (2006). Does random urine drug testing reduce illicit drug use in chronic pain patients receiving opioids? *Pain Physician*, *9*, 123–129.
- Marlowe, D. B., & Wong, C. J. (2007). Contingency management in adult criminal drug courts. In S. T. Higgins, K. Silverman, & S. H. Heil (Eds.), *Contingency management in substance abuse treatment* (pp. 334–354). New York: Guilford Press.
- Mechanic, D., Schlesinger, M., & McAlpine, D. (1995). Management of mental health and substance abuse Services: State of the art and early results *the Milbank Quarterly*, Vol. 73, No. 1 (pp.19–55).
- McGovern, M. P., Angres, D. H., & Leon, S. (1998). Differential therapeutics and the impaired physician: Patient-treatment matching by specificity and intensity. *Journal of Addictive Diseases*, *17*, 93–107.
- McKay, J. R., Lynch, K. G., Shephard, D. S., & Pettinati, H. M. (2005). The effectiveness of telephone-based continuing care for alcohol and cocaine dependence. *Archives of General Psychiatry*, *62*, 199–207.
- McLellan, A. T., Kleber, H. D., & Carise, D. (2003). The national addiction treatment infrastructure: Can it support the public's demand for quality care? *Journal of Substance Abuse Treatment*, *25*, 117–121.
- Merlo, L. J., & Gold, M. S. (2008a). Elements of successful treatment programs for physicians with addictions. *Psychiatric Times*, *14*, 76–81.
- Merlo, L. J., & Gold, M. S. (2008b). Prescription opioid abuse and dependence among physicians: Hypotheses and treatment. *Harvard Review of Psychiatry*, *16*, 181–194.
- Monahan, G. (2003). Drug use/misuse among health professionals. *Substance Use & Misuse*, *38*, 1877–1881.
- Moos, R. H., & Moos, B. S. (2005). Paths of entry in to Alcoholics Anonymous: Consequences for participation and remission. *Alcoholism, Clinical and Experimental Research*, *29*, 1858–1868.
- Musto, D. (1999). *The American disease: Origins of narcotic control*, 3rd ed. Oxford: Oxford University Press.
- Nace, E. P., Birkmayer, F., Sullivan, M. A., et al. (2007). Socially sanctioned coercion mechanisms for addiction treatment. *American Journal of Addictions*, *16*, 15–23, doi:10.1080/10550490601077783.
- Newcomb, M. D. (1992). Substance abuse and control in the United States: Ethical and legal issues. *Social Science & Medicine*, *35*, 471–479.
- Osterloh, J. D., & Becker, C. E. (1990). Chemical dependency and drug testing in the workplace. *Journal of Psychoactive Drugs*, *22*, 407–417.
- Pomm, R. M., & Harmon, L. (2004). Evaluation and posttreatment monitoring of the impaired physician. *Psychiatric Annals*, *34*, 786–789.
- Roy, A. (1985). Suicide in doctors. *Psychiatric Clinics of North America*, *8*, 377–387.
- Shore, J. (1987). The Oregon experience with impaired physicians on probation: An eight year follow-up. *Journal of the American Medical Association*, *257*, 2931–2934.
- Simon, W. (1986). Suicide among physicians: Prevention and postvention. *Crisis*, *7*, 1–13.
- Simpson, D., & Joe, G. (1993). Motivation as a predictor of early dropout from drug abuse treatment. *Psychotherapy*, *30*, 357–368.
- Skipper, G. E., Weinmann, W., Thierauf, A., et al. (2004). Ethyl glucuronide: A biomarker to identify alcohol use by health professionals recovering from substance use disorders. *Alcohol and Alcoholism*, *39*, 445–449, doi:10.1093/alcalc/agh078.
- Smith, P. C., & Smith, J. D. (1991). Treatment outcomes of impaired physicians in Oklahoma. *Journal - Oklahoma State Medical Association*, *84*, 599–603.
- Talbott, G., Gallegos, K., Wilson, P., & Porter, T. (1987). The Medical Association of Georgia's impaired physicians' program: Review of the first 1000 physicians—Analysis of specialty. *Journal of the American Medical Association*, *257*, 2927–2930.
- Van den Brink, W., & Haasen, C. (2006). Evidenced-based treatment of opioid-dependent patients. *Canadian Journal of Psychiatry*, *51*, 635–646.
- Washton, A. M., Gold, M. S., & Pottash, A. C. (1984). Successful use of naltrexone in addicted physicians and business executives. *Advances in Alcohol & Substance Abuse*, *4*, 89–96.
- White, W. (2000). Listening to history: Lessons for the EAP/managed care field. *EAP Digest*, *20*, 16–26.
- White, W. (1998). *Slaying the dragon: The history of addiction treatment and recovery in America*. Bloomington, IL: Chestnut Health Systems.
- White, W. L., DuPont, R. L., & Skipper, G. E. (2007). Physicians Health Programs: What counselors can learn from these remarkable programs. *Counselor*, *8*, 42–47.