

DISSERTATION

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*Drug and Alcohol
Treatment Services Among
Privately Insured
Individuals in Managed
Behavioral Health Care*

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ABSTRACT

Drug and alcohol problems are a significant public health issue, affecting millions of Americans. Many of these individuals are privately insured. Private insurance coverage for substance abuse (SA) disorders has improved recently, but coverage for SA disorders remains more restricted than for other behavioral health disorders. Behavioral health benefit management has also been changing dramatically; today most privately insured individuals have their behavioral health care benefits managed separately (e.g. carved-out) from their other medical benefits. The primary goal of this dissertation is to use existing data to contribute to the empirical information available to assist decision-makers in understanding the effect of these rapid changes in the private insurance marketplace on SA treatment services.

The impact of cost-sharing and different approaches to behavioral health benefit management on SA treatment service utilization was examined using two separate administrative data sets. Several analyses were conducted to examine the effects of cost-sharing across different types of SA treatment services. A separate analysis examined how utilization and costs are affected by the management of behavioral health benefits by a carve-out compared to an HMO.

Low rates of documented SA treatment (0.37%) were found, but higher rates of treatment following detoxification (78%) than documented in other populations. Results demonstrate that different approaches to managing SA benefits and different levels of patient cost-sharing both significantly effect the type and amount of SA treatment utilization. Patients whose SA treatment was managed by a carve-out rather than an HMO had less inpatient and routine outpatient treatment, but higher levels of intermediate SA treatment. Individuals with higher SA copayments were less likely than those with little or no copayment to receive residential SA treatment and specialty SA outpatient treatment; higher levels of copayments were also associated with less treatment following inpatient detoxification.

More generous SA benefits are a potential approach to improving access to and quality of SA treatment, but the low rates of treatment suggest that the impact of this approach may be limited. Better understanding of the true nature of SA treatment of the privately insured is needed to understand the policy implications of these findings.

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CHAPTER 1.

INTRODUCTION

Drug and alcohol problems are one of the most significant public health issues facing the United States, affecting millions of Americans annually. Over 5 million Americans are estimated to be in severe need of drug and alcohol treatment. While the perception of many is that individuals with drug and alcohol abuse are treated primarily in the public sector, the majority of illicit drug users and alcoholics are employed and the private sector now accounts for a substantial amount of substance abuse treatment expenditures. This dissertation examines factors influencing the utilization of drug and alcohol treatment services among privately insured populations.

Private insurance coverage of drug and alcohol disorders has historically been poorer than for medical or other mental health disorders. Lack of coverage, coverage restrictions, and benefit limits have affected the care that individuals with these disorders have been able to receive, and may contribute to insufficient substance abuse treatment for those in need of treatment. In recent years, the number of individuals who have insurance covering drug and alcohol disorders has grown, as has the extent of this coverage, although coverage for drug and alcohol disorders has remained more restricted than coverage for other mental health disorders. At the same time as coverage was increasing, however, the management of the benefits covering the treatment of privately insured individuals has changed dramatically, with first the growth of managed care, and more recently the growth of behavioral health carve-out plans. Today, the majority of individuals with private insurance have their behavioral health care benefits carved out, and managed separately from their other medical benefits. The growth of managed care, and the effect it has had on payment for drug and alcohol treatment services, has raised concerns about its impact on the quality and delivery of drug and alcohol treatment services. At the same time, the changes brought about by managed care's growth may offer the opportunity to incorporate care management and other techniques with the

potential to improve both access to specialized drug and alcohol treatments and the quality of the treatment provided by the health care system.

Unfortunately, there is little empirical information available to assist policy makers and decision-makers in understanding the impact of these changes in the private insurance marketplace on the delivery of drug and alcohol treatment services. This dissertation makes an important contribution to our knowledge of the impact of behavioral health carve-outs on the treatment of privately insured individuals with drug and alcohol problems across a range of policy relevant issues. Prior studies have analyzed drug and alcohol treatment under different managed care arrangements, primarily staff model HMOs, and these studies have formed the basis of policy discussions concerning substance abuse treatment under managed care. This dissertation builds on this work, using three separate analyses using administrative claims data from multiple sources to examine substance abuse treatment. Two of these analyses, Chapters 3 and 5, are presented as they have been published in peer-reviewed journals. The first analysis, Chapter 3, addresses the current relevance of prior studies by exploring whether the recent growth of carve-outs in the behavioral health care market place has resulted in any substantial shift or change in the delivery of drug and alcohol treatment services from what has been described under HMO managed care. As policymakers consider the impact of "managed care" on drug and alcohol treatment, the results of this analysis will enable them to make an informed decision about to what extent research on "earlier" types of managed behavioral health care are relevant to decisions being made today.

The second analysis, Chapter 4, examines the effect of patient copayments on substance abuse treatment in a broader group of patients, by examining the effect of patient copayments on residential treatment utilization rates in patients receiving any drug or alcohol treatment. Patients requiring detoxification are likely to be systematically different in terms of severity of illness and drug of choice from all patients requiring intensive substance abuse treatment. Expanding the sample to include a larger group of patients ensures that the examination of patient financial incentives on participation in substance abuse treatment includes individuals whose illness is not so severe as to require

detoxification. A different claims data source is used in the third analysis of the dissertation in order to ensure that the findings are representative of more than one managed behavioral health organization, and do not just reflect the management techniques of a single MBHO.

The third analysis, Chapter 5, examines one quality indicator of substance abuse treatment, treatment after detoxification, the indicator that may best reflect the quality of care being delivered to the most severely ill individuals. This chapter examined the percentage of individuals receiving such treatment among individuals who received inpatient detoxification. The analysis incorporated the level of patient copayment for outpatient treatment, a factor that has been previously shown in prior studies of mental health service utilization in a fee-for-service setting to influence patient demand for outpatient treatment services. However, it is not known to what extent this finding generalizes to patients seeking drug and alcohol treatment in a service delivery system subject to a care management. If copayments influence patient demand for a clinically necessary treatment, it would provide an impetus for policymakers and decision makers to explore whether this might be exploited in order to improve the drug and alcohol treatment of individuals with severe substance abuse problems.

CHAPTER 2.

LITERATURE REVIEW

Drug and alcohol use disorders affect over 11% of American adults annually (Kessler et al., 1994), and estimates are that over 5 million Americans are in severe need of drug and alcohol treatment. (Epstein & Gfoerer, 1998) These disorders represent one of the most significant public health issues facing the United States (Califano, 1998), with estimates of total societal costs of drug abuse alone of over \$143 billion in 2000. (Office of National Drug Control Policy, 2001) Less than 5% of those costs are associated with treatment, (Office of National Drug Control Policy, 2001) despite repeated studies demonstrating that treatment is effective in reducing both drug and alcohol use and the societal costs associated with such use. (Anglin & Hser, 1990; Gerstein & Harwood, 1990; Gerstein et al., 1994; Hubbard, Craddock, Flynn, Anderson, & Etheridge, 1997; Hubbard et al., 1989; Johnson & Gerstein, 2000; Schildhaus, Gerstein, Brittingham, Cerbone, & Dugoni, 2000; Simpson, Joe, & Broome, 2002).

Drug and alcohol abuse and treatment among the privately insured

The public sector continues to play an important role in the treatment of individuals with drug and alcohol disorders. However, the majority of illicit drug users and alcoholics are employed, (Substance Abuse and Mental Health Services Administration, 1998) and recent surveys document the extent of drug and alcohol problems in the employed population. According to the most recent National Household Survey on Drug Abuse, over 2.7 million Americans with full time employment, or 2.3% of individuals with full time employment, reported using an illicit drug other than marijuana in the past month. This included drugs such as cocaine, crack cocaine, heroin, LSD, PCP, and inhalants, as well as non-medical use of prescription medications such as narcotics, tranquilizers, stimulants, and sedatives. (Substance Abuse and Mental Health Services Administration, 2001) Rates of heavy alcohol use are even higher among the full-time employed, with over 8 million Americans estimated to have heavy use in the last month. (Substance

Abuse and Mental Health Services Administration, 2001) Table 2.1 provides greater detail about use of drugs and alcohol among employed individuals.

Table 2.1 Past Year and Past Month Use of Illicit Drugs and Alcohol Among Full Time Employed Aged 18 or Older

	Past Year	Past Month
Drug		
Cocaine	1.6	0.6
Hallucinogens, including LSD and PCP	1.2	0.3
Inhalants	0.5	0.2
Nonmedical use of prescription medication, including narcotics, tranquilizers, stimulants, or sedatives	3.7	1.6
Any illicit drug other than marijuana	5.5	2.3
Any illicit drug	11.0	6.3
"Binge" alcohol use ^	na	26.6
Heavy alcohol use #	na	7.1

^ Binge alcohol use is defined as drinking at least 5 or more drinks on the same occasion at least one day in the past 30 days

Heavy alcohol use is defined as drinking at least 5 or more drinks on each of five or more in the past 30 days

Source: SAMHSA, Office of Applied Studies, National Household Survey of Drug Abuse, 2000 (Substance Abuse and Mental Health Services Administration, 2001)

Public and private sector drug and alcohol treatment

In meeting the need for treatment of privately insured individuals, the private sector has historically accounted for as much as 41% of substance abuse treatment expenditures, (Gerstein & Harwood, 1990; Rogowski, 1992) and a recent survey of psychiatrists found that almost half of patients being treated for alcohol abuse and dependence were privately insured. (Svikis, Zarin, Tanielian, & Pincus, 2000) The systems delivering treatment to

individuals with drug and alcohol problems have also traditionally been segmented, with two separate tiers of providers, and there has been little overlap in providers or patients in the public and private system. In contrast to the public tier which has traditionally delivered services through public or non-profit programs whose revenues are derived largely from government agencies, the private tier has been made up of privately owned providers (including both for profit and not for profit programs) deriving revenues from private insurance. (Gerstein & Harwood, 1990)

Despite the existence of this tier of substance abuse treatment providers who focus on serving privately insured patients, and evidence that drug and alcohol treatments are as effective as treatments for other chronic disorders, the available data suggests there remains a high level of unmet need for drug and alcohol treatment among privately insured individuals. Recent estimates suggest that while there is not a significant difference between the public and private sector in the percentage of persons with a significant need for drug treatment (not including alcohol treatment) who receive it. (Woodward et al., 1997) In developing their estimates of need, Woodward and colleagues used data from the National Household Survey on Drug Abuse (NHSDA), and used a relatively strict definition defining need for treatment as individuals who 1) met an approximation of DSM-III-R criteria (American Psychiatric Association, 1994) for drug dependence for a drug other than marijuana, or 2) injected cocaine, heroin, or stimulants in the past 12 months, or 3) received drug abuse treatment at a specialty facility during the past 12 months, or 4) had frequent use, defined as weekly use for cocaine, any use for heroin, daily use and dependence for marijuana, and daily use for other drugs. (Woodward et al., 1997)

Private insurance for drug and alcohol treatment

For many years, drug and alcohol treatment services were not covered by private health insurance. The first private insurance coverage for the treatment of alcoholism was provided in 1964 through the employee accident and health plans of the Kemper Insurance Companies, with the first Blue Cross coverage for alcohol treatment occurring in 1969. (Scott, Greenberg, & Pizarro, 1992) Private insurance coverage for drug and

alcohol treatment services did not become common until the 1980s, (Morrisey & Jensen, 1988) and many insurance plans have traditionally not covered important substance abuse services, such as residential treatment, partial hospital, intensive outpatient, and case management services. (Buck, Teich, Umland, & Stein, 1999) There have been a variety of explanations offered for this lack of coverage. These include doubts about whether drug and alcohol problems are truly diseases, skepticism regarding the effectiveness of treatment, concern about relapse rates, the perceived high cost of treatment, the lack of reliable estimates of the incidence and duration of drug and alcohol disorders and the cost of treatment, and the lack of information about how utilization of services might change if insurance coverage were available. (Institute of Medicine, 1990a, 1990b; Morrisey & Jensen, 1988; Scott et al., 1992; Williams, 1981)

Although the number of insurance plans that provide coverage for drug and alcohol treatment services has increased, the majority of plans continue to place limits on these benefits greater than limits on corresponding medical benefits. Limits include the amount payable per year and lifetime, separate deductibles and higher coinsurance, and limits to the number of days (inpatient) or visits (outpatient) that are covered. (Buck et al., 1999) While the discrepancy between coverage for mental health and medical care was addressed in the 1997 Mental Health Parity Act, it is worth noting that this legislation explicitly did not mandate parity in coverage for drug and alcohol treatment, and that the two legislative mandates requiring substance abuse treatment parity introduced in Congress in 1999 were not passed into law. (United States House of Representatives, ; United States Senate) A recent study has documented that in the absence of such legislation, the level of cost-sharing for outpatient substance abuse treatment is greater than the level of cost-sharing for medical care. (Hodgkin, in press)

Managed Care and Drug and Alcohol Treatment

At the same time as insurance coverage for drug and alcohol treatment has been expanding, there have been dramatic and far reaching changes in the management of health insurance benefits for most privately insured Americans. Today, most individuals with private insurance are covered by managed care, (Jensen, Morrisey, Gaffney, &

Liston, 1997; Oss & Clary, 1999; Substance Abuse Mental Health Services Administration, various dates) and their behavioral health care benefits are being managed separately (i.e. carved-out) from their medical benefits with increasing frequency. As a result, the number of privately insured individuals whose “carved-out” behavioral health care benefits is administered by one of the managed behavioral health organizations (MBHOs) has grown, and more than 160 million Americans now have their “carved-out” behavioral health care benefits administered by one of the MBHOs. (Oss & Clary, 1999)

The management of behavioral health benefits by managed care “carve-outs” represents a dramatic change from both the traditional fee-for-service (FFS) model and other types of managed care. Under FFS, providers would be reimbursed for the care they provided, and there was usually little effort by the insurer to restrict the patient to a specific level of care or amount of service. Under this model, care was essentially unmanaged, and there was little incentive for either patients or providers to limit intensity or duration of treatment. The FFS model was associated with the proliferation of 28-day inpatient hospital chemical dependency programs, which took advantage of the 30-day inpatient treatment limit present in many benefit packages, but were not shown to be more effective than other less expensive treatment alternatives. (Long, Williams, & Hollin, 1998) This resulted in increased costs in the provision of drug and alcohol treatment services, and uncertainty about the future costs of insuring these services. Some employers then turned to HMOs to manage behavioral health care in a manner similar to their management of the medical care. This most commonly resulted in a prepaid capitated arrangement in which the individual’s primary care physician (PCP) would function as a gatekeeper. Discussions about “managed care’s” impact on the costs of caring for patients with psychiatric disorders have often been based on these arrangements. (Wells, Sturm, Sherbourne, & Meredith, 1996) However, this risk sharing and gatekeeping was not as appropriate nor as successful for managing behavioral health care as it had been for managing medical care, (Iglehart, 1996) which resulted in the development of MBHOs with whom the HMOs could contract out the management of behavioral health care. (Hodgkin, Horgan, & Garnick, 1997)

There was rapid consolidation of the carve-out marketplace in the 1990s, and there are currently only 5-6 large national MBHOs. The economies of scope and scale available to such large organizations complemented the MBHOs' development of a variety of new techniques to manage behavioral health care utilization. These techniques rely upon intensive concurrent utilization review of care by specially trained care managers and incorporate the use of treatment guidelines and disease management systems in their utilization review, techniques that have only begun to be used in other areas of medicine, (Sturm, 1999) but appear to have very little leverage over the quality of care delivered by providers. The common feature of these techniques is a shift of clinical decision making away from clinicians to the managed care organization, which is a very different approach to care management than the primary care gatekeeping model used in HMOs, and quite different than the unmanaged care in a FFS regime. However, it is unclear to what extent these techniques have had a substantial impact on the treatment of drug and alcohol disorders beyond a shift from inpatient to outpatient care. (Steenrod, Brisson, McCarty, & Hodgkin, 2001)

One might expect that this shift to a more clinically focused care management system (with a corresponding shift to a fee for service style payment system) would substantially impact the nature of behavioral health care received by patients. This transition has not been well studied; the majority of studies of drug and alcohol treatment under managed care have focused on the public sector. The few studies examining the effect of the changes in the management of behavioral health benefits for privately insured individuals have focused primarily on the costs and utilization of mental health services. (Callahan, Shepard, Beinecke, Larson, & Cavanaugh, 1995; Goldman, McCulloch, & Sturm, 1998; Gresenz, Liu, & Sturm, 1998; Ma & McGuire, 1998; Schoenbaum, Zhang, & Sturm, 1998; Sturm, 1997) Drug and alcohol treatment services have either been excluded, or studies have examined all behavioral health care together. (Callahan et al., 1995; Schoenbaum et al., 1998) This provides only limited information about substance abuse treatment services because these services account for a small percentage of all behavioral health care.

Managed behavioral health care's recent dramatic growth has raised concerns about managed care's potential impact on the quality and delivery of all behavioral health services, with several authors expressing particular concern about drug and alcohol treatment services. (Chang et al., 1998; McLellan et al., 1998) These concerns include questions about patients' access to different types of drug and alcohol treatment services under managed care, the quality of services being provided, and the overall impact of economic incentives on the delivery of services. While clinicians do not distinguish between the various types of managed care, there is reason to believe that behavioral health care carve-out plans may be different than other types of managed care.

Given the chronic and complex nature of drug and alcohol disorders in many individuals, optimal treatment requires that treatment be tailored to the needs of the individual, frequently requiring patients to move through treatment in multiple levels of service along a continuum of care. (American Society of Addiction Medicine, 1996) Historically, however, many privately insured individuals did not have access to treatment along an entire continuum of care. (Buck et al., 1999) In some cases this was due to the absence of available services, while for others access was limited due to benefit restrictions. While clinicians are concerned that managed care may inappropriately restrict access to appropriate substance abuse treatment services, the increased use of treatment guidelines and care management systems potentially may improve access to more intermediate levels of care, such as partial hospital and day treatment programs. This may occur if the treatment guidelines and clinically focused care management systems recognize the chronic nature of many drug and alcohol disorders resulting in an increased use of treatment strategies that rely upon a full continuum of care. This is in contrast to attempting to treat drug and alcohol disorders as acute illnesses, which has historically been the approach. (McLellan, Lewis, O'Brien, & Kleber, 2000) While there does appear to be some increase in plans' benefit coverage of the full continuum of care for behavioral health services, (Buck et al., 1999) no information is available about whether this increase is just for mental health services, or also includes drug and alcohol treatment services.

Given the historical inequities in the insurance coverage of drug and alcohol treatment services, and the dramatic changes that have recently occurred in the management of these benefits, it is not surprising that there remain substantial gaps in knowledge that hinder policymakers' abilities to make well informed decisions with regard to drug and alcohol treatment services. Better understanding the quality of care provided to individuals with drug and alcohol disorders, and how this quality may vary as a result of different treatment systems and benefit structures, will assist clinicians and policymakers in understanding the impact of recent changes in the management of behavioral health benefits. One of the first steps toward achieving this goal must be the development of performance measures that can be used to assess quality of drug and alcohol treatment services, (McCorry, Garnick, Bartlett, Cotter, & Chalk, 2000) and then to determine their utility and to what extent they accurately reflect the quality of care being delivered. (Garnick et al., 2002) Examples of potential substance abuse treatment performance measures using administrative data include the *identification rate of substance abuse treatment*, defined as the percent of enrollees with an alcohol or drug related claim; and the *initiation rate of substance abuse treatment*, defined as the percent of adult enrollees with any alcohol or drug related claim who have an inpatient admission or a second claim within 2 weeks of an initial outpatient alcohol or drug treatment claim. (Garnick et al., 2002) Such performance indicators can establish a benchmark that researchers, health system administrators, clinicians, and policymakers can use in assessing the impact of financial, organizational, and other systemic factors on the quality of substance abuse care being delivered. (Garnick et al., 2002; McCorry et al., 2000)

At the same time, it is important to learn more about how different types of behavioral health plan management, and the benefits themselves, affect the process of care. For example, little is known about whether the clinical treatment of individuals with drug and alcohol problems whose benefit is managed by a carve-out differs from the care received by individuals covered by a different benefit structure, such as FFS or an HMO. Carve-outs' use of treatment guidelines and clinically focused care management systems suggest potentially greater attention to the quality of the process of care being provided,

as compared with unmanaged care or care managed through the use of a primary care physician gatekeeper. In addition, carve-outs are less likely to have special limits on outpatient services than all other types of plans with limits on behavioral health benefits. (Buck et al., 1999) As a result, the changes in how care is managed under a carve-out may actually represent an opportunity for improving access to mental health services, as well as improving the quality of the overall system of care. While there is a valid concern about restricting access to appropriate substance abuse treatment services under managed care, the increased use of treatment guidelines and care management systems potentially may improve the quality of care. This may occur if the use of treatment guidelines, clinically focused care management systems, and a full continuum of care results in increased use of treatment approaches that recognize the chronic nature of many drug and alcohol disorders, rather than continue to use treatment strategies that are better suited to treating acute illnesses as has historically been the approach. (McLellan et al., 2000) At this time, however, no information is available about the quality of substance abuse treatment among privately insured individuals.

Differences in the quality of substance abuse care received by individuals resulting from differences in a given health plan may be the result of differences in the care delivery systems contracting with the health plan, the overall nature of plan benefits, or very specific plan benefits such as the level of copayment. Differences in quality of substance abuse services may be reflected by variation in the nature, extent, and duration of patient interactions with a specific clinician or clinicians. Differences in the overall quality of substance abuse services in a plan may also result from a lack of access (resulting from services excluded from coverage) for a broad range of substance abuse treatment services. A recent survey of private employers found that 21% of employees were in plans that did not cover inpatient substance abuse treatment, while 16% of employees were not covered for outpatient substance abuse treatment. (U.S. Department of Labor Bureau of Labor Statistics, 2002) In such cases of excluded coverage, the potential impact on the quality of care is relatively apparent. On the other hand, quality of care differences related to patient-clinician interaction or subtle systemic differences in the

process of care that arise from benefit structure, may be much less apparent to patients or purchasers of insurance plans.

Some of the important issues raised above are beyond the scope of this dissertation, or could not be addressed since suitable data was unavailable. Using the data that was available, this dissertation begins to answer some of these important policy questions, and sets the stage for further research designed to improve substance abuse treatment for privately insured individuals.

Chapter 3 begins the examination of the effects of managed behavioral health care on substance abuse treatment for privately insured individuals through an examination of the impact of a change in the management of behavioral health care on the utilization of substance abuse treatment services that occurred after a large Midwestern employer changed from an HMO to a behavioral health carve-out. This chapter is presented as it was published in *The Journal of Behavioral Health Services & Research*, 26:4, November 1999, pages 450-455. Chapter 4 presents data on the rate of residential substance abuse treatment among individuals in 41 different health plans identified as having a drug or alcohol problem requiring treatment, and examines the relationship between rates of coinsurance in the individuals' plans and participation in residential substance abuse treatment services. Chapter 5 focuses again on individuals whose care is managed under a carve-out, and examines the effects of coinsurance among those individuals with the most severe drug and alcohol problems, those requiring drug or alcohol detoxification. This chapter is presented as it was published in *Psychiatric Services*, February 2000, 51:2, pages 195-198.

CHAPTER 3.

Substance Abuse Service Utilization under Managed Care: HMOs versus Carve-Out Plans

(as published in *The Journal of Behavioral Health Services & Research*, 26:4, November 1999, pages 450-455)

Abstract

Managed behavioral health care organizations are increasingly managing Americans' substance abuse by using carve-outs, but little information is available about how this has affected service utilization and costs when compared to HMOs. One employer's claims for substance abuse services delivered under a carve-out arrangement are compared to prior HMO claims information. Under the carve-out arrangement, inpatient and outpatient service utilization are found to decrease, but intermediate service utilization dramatically increases. Costs per unit service decrease for all services. The pattern of changes is different from that seen for mental health services, suggesting that different factors may be applicable to substance abuse services.

The increasing growth of managed care in the past decade has caused a dramatic shift in the practice of medicine in the United States. Whereas once, most insured Americans received their medical coverage under a fee-for-service insurance plan, the majority are now covered under some type of managed care plan. (Jensen et al., 1997) When this transition first started, managed care frequently meant participation in a health maintenance organization (HMO), but this too has changed with the development of a many different types of managed care organizations that administer patients' health care benefits.

Recent estimates are that over 160 million Americans now have their behavioral health care (mental health and substance abuse) managed by some type of managed behavioral

healthcare organization (MBHO). (Oss & Clary, 1999) An increasingly common - and by now the dominant - approach to managed care has been the development of behavioral health care "carve-outs," (Oss & Clary, 1999) so named because the management of mental health (MH) and substance abuse (SA) benefits are separated (carved out) from other health care benefits. Only recently have researchers begun studying the effect of these changes on the costs and utilization of behavioral health care services. (Callahan et al., 1995; Goldman et al., 1998; Gresenz et al., 1998; Ma & McGuire, 1998; Schoenbaum et al., 1998; Sturm, 1997) This research has focused primarily on mental health services, either excluding substance abuse services or examining all behavioral health care together, which provides only limited information about substance abuse services because these services account for a small percentage of all behavioral health care. (Callahan et al., 1995; Schoenbaum et al., 1998) Moreover, no study to date has contrasted substance abuse care under carve-outs and HMOs in the private sector. To provide more information about this issue, this study compares substance abuse service patterns in HMOs versus a behavioral health care carve-out using a pre-post design.

METHODS

Substance abuse claims data generated from the experience of one large Midwestern employer were used to investigate the effects of switching its employees, initially receiving care in 23 different HMOs, to one behavioral health care carve-out. In 1994, the employer decided to switch all behavioral health care to one carve-out and the transition occurred in 1995. The HMO utilization information for 1993 was calculated by a consulting firm for the employer. All HMOs imposed some type of annual limit on substance abuse and mental health services, typically a maximum of 30 outpatient sessions and/or 30 inpatient days. Copayments for outpatient care ranged from no copayment to \$25 per session, sometimes dependent on prior use, and one HMO required patients to pay 20% of the charges. Copayments for inpatient services ranged from no copayment (about half the HMOs) to a \$25 copayment or even a 20% copayment. Beginning in 1995, all HMO members had their behavioral health care benefits managed by United Behavioral Health (UBH) (formerly known as U.S. Behavioral Health) with

unlimited benefits. The population over this time period (1993-1996) remained stable, with less than 1% growth in the HMO membership. Beginning in 1995, copayments were \$100 per inpatient episode and \$10 per outpatient session. UBH's authorization decisions concerning substance abuse care are all made by licensed care managers under the supervision of a board-certified psychiatrist. Decisions are made following level-of-care guidelines that are comparable to the guidelines established in the American Society of Addiction Medicine Patient Placement Criteria,(1996) and are guided by the individual patient's clinical presentation, plan benefits, and resource availability. Data from the first two years after the carve-out was used for the analysis.

For analysis, substance abuse patients were identified based on the primary ICD-9 diagnostic code. Services received by these patients were then categorized as inpatient, intermediate, or outpatient based on claims data, which individually identifies services received by each patient. For descriptive purposes, intermediate services are subdivided into overnight and ambulatory service. The inpatient category includes both inpatient detoxification as well as inpatient hospitalization for substance abuse treatment. The intermediate category covers a range of services including overnight services, such as residential treatment and recovery homes, and ambulatory services, including partial hospitalization, day treatment programs, and intensive outpatient programs. The outpatient category includes both individual and group outpatient therapy. The mean utilization rates and costs were calculated, and bootstrapping was used in Stata version 5.0(1997) to calculate a 95% confidence interval. These results are compared to the HMO numbers provided by the consulting firm, and the analysis is confined to the broad categories referred to in the consultant report since individual-level data for the HMOs are not available.

RESULTS

Tables 1 and 2 show the changes that occurred in substance abuse service utilization and costs as benefit management changed from HMOs to a behavioral health care carve-out. There was a dramatic shift in the category of service being provided as management of

care shifted from HMOs to the carve-out. The use of inpatient services per 1,000 members significantly decreased from 10.6 (95% confidence interval: 11.9-9.4) to 5.5 (7.5-3.6) in the first year following the change to the carve-out and continued to decrease to 2.5 (4.1-1.6) in the second year. Outpatient service utilization followed a similar pattern, decreasing from 45.7 (47.6-43.9) under the HMO to 15.7 (19.5-12.0) in the first carve-out year and 12.1 (15.0-9.5) in the second. However, intermediate services increased from 7.7 (11.8-1.2) to peak at 41.7 (52.5-30.2) in the first year and then decreased in the second year of the carve-out to 26.7 (32.1-20.3). Overnight services comprised 27% of all intermediate services in the first carve-out year and 23% in the second year. Total service utilization (the sum of inpatient, intermediate, and outpatient services) showed little change in the first carve-out year, but declined in the second year.

Table 1: Substance Abuse Service Utilization

	HMO 1993 95% CI	Carve-out Year 1 (1995) 95% CI	Carve-out Year 2 (1996) 95% CI
Inpatient	10.6 (11.9-9.4)	5.5* (7.5-3.6)	2.5* (4.1-1.6)
Intermediate	7.7 (11.8-1.2)	41.7* (52.5-30.2)	26.7* (32.1-20.3)
Overnight	na	11.2 (18.4-5.9)	6.2 (8.2-4.0)
Ambulatory	na	30.5 (28-22.6)	20.5 (26.1-15.7)
Outpatient	45.7 (47.6-43.9)	15.7* (19.5-12.0)	12.1* (15.0-9.5)
Total	64 (73.7-56.0)	62.9 (78.4-48.6)	41.3*† (46.9-35.1)

*p<.05 from HMO. † significant at p<.05 from Carve out year 1

Note: Utilization is for 1,000 members per year; 95% confidence interval shown in parentheses. Units of service are days for inpatient and overnight categories; units of service are sessions for ambulatory and outpatient categories

The changes in cost per unit service are shown in Table 2. The first year of the carve-out saw a reduction in costs per unit service in all three treatment categories from costs under the HMO, while costs in the second year of the carve-out continued to decrease for inpatient and outpatient services, but showed little change for intermediate services.

Table 2: Cost of Substance Abuse Services: Dollars/ Unit of Service

	HMO 1993 95% CI	Carve out Year 1 (1995) 95% CI	Carve out Year 2 (1996) 95% CI
Inpatient	412 (430-394)	353 (395-309)	306.5* (363-242)
Intermediate	142 (152-133)	124 (139-109)	123 (136-108)
Overnight	na	297 (467-200)	213 (248-174)
Ambulatory	na	106 (118-94)	104 (117-94)
Outpatient	68 (70-68)	62 (66-57)	51.5*† (55-47)
Annual Cost/1000 members	7.32 (8.72-7.80)	8 (9.2-6.4)	4.90*† (6.2-3.6)

Note:

*p<.05 from HMO. † p<.05 from carve-out year 1.

Units of service are days for inpatient and overnight categories. Units of service are sessions for ambulatory and outpatient categories

Limitations

A potential limitation to this analysis may arise from how visits are coded in the claims data. All visits coded as substance abuse visits are identified in both the HMO and UBH data, although the percentages of substance abuse treatment provided by behavioral health care specialists and primary care physicians are unavailable. Primary provider care for substance abuse services under either the HMO or the carve-out that was consistently not coded as such would not bias the results, nor would primary care physicians providing substance abuse services under either the HMO or the carve-out who coded these services.

Still, a possibility exists that primary care providers coding visits as treatment for substance disorders under an HMO, but not post carve-out, might be an issue. The data do not allow this to be explored directly, but it is unlikely to substantially bias the results. Although primary care providers are the sole source of treatment in some behavioral health disorders, such as depression, treatment of these disorders is frequently not coded as the reason for the physician visit. (Wells et al., 1996) Compared to depression, substance use disorders are probably less likely to be coded as the reason for a visit because pharmacological interventions are ineffective without non-pharmacological treatment, substance abuse treatment guidelines for primary care provider treatment do not exist, (Edmunds et al., 1997) and primary care providers are unlikely to screen or treat substance use disorders without additional support and training. (Adams, Ockene, Wheller, & Hurley, 1998; McCrady, Richter, Morgan, Slade, & Pfeifer, 1996)

The data are also limited to one firm's experience, and other firms may administer substance abuse benefits under a carve-out differently than UBH does, resulting in different utilization patterns and costs. Also, the study cannot account for other factors coincident with the shift to a carve-out, such as changes in the population receiving coverage, due to its pre-post observational design. Nor can it provide any insight about the clinical appropriateness of services delivered due to the lack of clinical information available in the administrative data set.

DISCUSSION

The rapid changes that have occurred in the behavioral health care market place in the last decade have resulted in the majority of insured Americans having their mental health and substance abuse care managed by a MBHO under a carve-out arrangement. Prior research has found that these changes have resulted in significant differences in the costs and utilization of mental health services when shifting from traditional indemnity plans to carve-out managed care. (Callahan et al., 1995; Goldman et al., 1998; Ma & McGuire, 1998) This article shows that even switching between different types of managed care may lead to a major change in substance abuse service delivery, which may continue as the carve-out matures. These findings differ in one significant aspect from prior research on behavioral health care, which either found a decline in all services (Goldman et al., 1998) or a substantial decrease in more intensive levels of treatment (such as inpatient and intermediate) and an increase in outpatient treatment. (Ma & McGuire, 1998; Sturm, 1997) This analysis of substance abuse patients finds an overall decrease in utilization by the second year. However, an increase in intermediate service utilization was seen, while both inpatient and less expensive outpatient services declined. In all these studies, benefits for behavioral health were increased with the switch to a carve-out (e.g. reduction in copayments or removal of deductibles or limits).

The change in management of behavioral health care from an HMO to a carve-out arrangement also resulted in a trend toward decreasing cost per unit service. This results in the costs per unit service by the second year of the carve-out being approximately 30% less than the costs of the same service under HMOs for inpatient and outpatient services, and 15% less for intermediate services, with much of this change the result of decreased costs of overnight intermediate services.

The findings are significant, not only for the information they provide about substance abuse treatment services under a carve-out but also for how substance services may differ from mental health services. The decrease in cost per unit service is similar to what has

been seen in mental health services under a carve-out arrangement.(Goldman et al., 1998) This is generally thought to result from both changes in provider contracts and the utilization of less expensive providers (i.e. social workers and psychologists rather than psychiatrists), however, recent research has suggested that there is generally no shift to less expensive providers in carve-out plans. (Sturm & Klap, 1999) It is unclear to what extent these findings are generalizable to substance abuse treatment since psychiatrists and other physicians are often involved to a much lesser extent in the provision of substance abuse treatment services than mental health services. Further research is also needed to explore the relationship of decreased cost per unit service in carve-outs on outcomes of substance abuse patients, an important topic about which little is known. Analysis of different cost containment mechanisms suggest that although in many cases they are not associated with worse outcomes, that poor people and individuals with greater psychological distress may achieve worse outcomes under greater cost containment. (Wells, 1995)

The finding of an increase in intermediate service utilization also suggests that factors might be affecting substance abuse service utilization differently than they affect mental health service utilization. The increased availability and diversity of intermediate treatment options may provide a clinically more appropriate treatment option to many individuals than had been previously available. One example might be patients who require a more intensive level of care than outpatient treatment but for whom the only previous alternative was inpatient care. Some of the observed shift from inpatient and outpatient to intermediate services, therefore, may have resulted from the opportunity for treatment at a more appropriate level of care. Alternatively, the increase in intermediate service utilization may have been driven primarily by the carve-out's management of care, which often emphasizes the use of intermediate levels of care. (Goldman et al., 1998)

The finding of a decrease in utilization and costs between the first and second year of the carve-out suggests that, similar to mental health, substance abuse services undergo a period of change when managed by a carve-out. Future research is needed to determine to

what extent this period of change is the result of carve-outs learning how best to administer substance abuse benefits and to what extent the transition period is the result of providers learning how to best provide services within the constraints of a concurrent review.

Implications for Behavioral Health Services

Managed care is growing dramatically in the public sector, and 47 states are now implementing managed behavioral health programs. Most of those programs are new and have not yet been evaluated, and there is little experience with managed care in the public sector. In the past, managed care was often synonymous with prepaid, capitated arrangements, often involving primary care gatekeeping under HMOs, and discussions of managed care's impact on resource allocation for psychiatric disorders have focused on these arrangements. (Wells et al., 1996) However, public health administrators need to be aware that different arrangements with for-profit private sector firms could lead to very different utilization patterns. This article shows how switching the same population from HMOs to MBHOs leads to a substantial change in utilization patterns, in particular an increased reliance on intermediate types of services.

Further research is also needed to better understand the causes of the increase in intermediate service utilization for substance abuse patients under a carve-out arrangement and how these increases in intermediate services vis-a-vis more traditional inpatient and outpatient services affects the clinical outcomes of patients requiring substance abuse services.

CHAPTER 4.

Drug and alcohol treatment among privately insured patients: Rate of formal substance abuse treatment and association with cost-sharing

ABSTRACT

Objective: To examine the rate of formal substance abuse (SA) treatment in a privately insured population, and the association between cost-sharing and residential treatment and outpatient SA treatment, we analyzed claims data for 332,442 adults in 41 health plans with comprehensive SA treatment benefits.

Design: SA treatment utilization during 1999 and the relationship between patient cost-sharing, gender, and SA diagnosis on SA treatment utilization were examined using a cross-sectional retrospective analysis.

Results: Only 0.37% (n=1230) of adults had a SA related claim during 1999. Individuals in plans with higher levels of cost-sharing had lower rates of residential SA treatment and specialty SA outpatient treatment compared to individuals in plans with lower cost-sharing, adjusting for age, sex, and SA diagnosis among those with any SA claim.

Conclusions: Few individuals had SA related claims, raising questions about rates of undocumented treatment, out-of-network treatment, and unmet need for treatment in the privately insured, and its implications for assessing the quality of SA treatment available in private health plans. At a time when levels of cost-sharing are increasing among privately insured individuals, consideration should be given the potential impact of such changes on the treatment of individuals requiring specialty SA treatment.

Key Words: drug and alcohol treatment, managed care, copayment, residential treatment, cost-sharing, insurance

Drug and alcohol treatment among privately insured patients: Rate of formal treatment and association with residential treatment cost-sharing

1. Introduction

Drug and alcohol problems represent one of the most significant health issues facing the United States (Califano, 1998). However, private health insurance coverage for substance abuse treatment services did not become common until the 1980s (Morrissey & Jensen, 1988), and even then, coverage was often limited to detoxification, not covering important services such as residential treatment, partial hospital, and intensive outpatient (Buck et al., 1999). A broader array of treatment services is covered today, but despite longitudinal studies showing treatment decreases drug use and criminal behavior (e.g. arrests) and increases social functioning such as employment (Anglin & Hser, 1990; Gerstein & Harwood, 1990; Gerstein et al., 1994; Hubbard et al., 1997; Hubbard et al., 1989; Simpson et al., 2002), most plans continue to place benefit limits greater than those on corresponding medical or mental health benefits, often with separate deductibles and higher copayments, (Buck et al., 1999). Over the last decade, there has also been increasing management of behavioral health insurance benefits for most privately insured Americans, in part a response to the spiraling costs related to hospital inpatient treatment of substance abuse (Jensen et al., 1997; Oss & Clary, 1999; Solano, 1997; Sturm, 1999; Substance Abuse Mental Health Services Administration, various dates).

According to the 2000 National Household Survey on Drug Abuse, over 2.7 million Americans, or 2.3% of individuals with full time employment, reported using an illicit drug other than marijuana in the past month (Substance Abuse and Mental Health Services Administration, 2001). This included drugs such as cocaine, crack cocaine, heroin, LSD, PCP, and inhalants, as well as non-medical use of prescription medications such as narcotics, tranquilizers, stimulants, and sedatives. Rates of heavy alcohol use, defined as 5 or more drinks on the same occasion on each of 5 or more days in the past 30 days, are even higher among the full-time employed, with over 8 million Americans, or

7.1% of individuals with full time employment, estimated to have heavy use in the last month (Substance Abuse and Mental Health Services Administration, 2001). Prior research also suggests that for many privately insured individuals the need for treatment remains unmet (Woodward et al., 1997), and concerns about managed care's impact on drug and alcohol treatment services have repeatedly been expressed (Chang et al., 1998; McLellan et al.).

Managed care has had a tremendous impact on the provision of all types of substance abuse treatment services, but nowhere more so than in the delivery of inpatient and residential substance abuse treatment services. At the same time that benefits expanded from inpatient treatment to also cover non-hospital residential treatment, residential treatment became the highest level of substance abuse care available for many patients who previously may have had the opportunity to participate in 28-day hospital inpatient programs (Personal communication, William Goldman, United Behavioral Health, 6/12/01). The increased prominence that residential treatment currently plays in the treatment of substance abuse disorders among the privately insured with respect to costs and utilization of services is supported by empirical studies. An analysis of one large Midwestern employer's experiences after switching management of behavioral health benefits from HMOs to a behavioral health "carve-out" in 1995 found that residential treatment utilization for substance abuse increased substantially while utilization of inpatient and traditional outpatient services declined (Stein, Reardon, & Sturm, 1999). A second study found that residential treatment accounts for 20% of all substance abuse treatment costs (as opposed to 3% for mental health disorders) (Sturm, Zhang, & Schoenbaum, 1999). This shift towards providing SA treatment at lower levels of care, even for the most severely ill, has raised concerns about managed care's potential impact on substance abuse treatment services. These include questions about patients' access to different types of substance abuse treatment services under managed care, an overall reduction in the amount of treatment provided, and the overall impact of economic

incentives on the delivery of services (Chang et al., 1998; McLellan et al., 1998; Stein et al., 1999).

Given the greater per unit cost of residential substance abuse treatment relative to outpatient treatment, utilization of these services may be more likely to be affected by the amount of patient copayment than outpatient substance abuse treatment. However, there is also relatively little known about the effects of benefits on outpatient substance abuse treatment for privately insured individuals, as most studies examining the effect of benefits have focused primarily on mental health service utilization and costs (Callahan et al., 1995; Goldman et al., 1998; Ma & McGuire, 1998; Sturm, 1997), either excluding substance abuse treatment services or examining all behavioral health care together. One study that did examine this issue found greater patient cost-sharing is significantly associated with reduced participation in substance abuse treatment for patients following detoxification (Stein, Orlando, & Sturm, 2000). The generalizability of this finding is uncertain, however, as patients requiring detoxification are likely to have more severe substance abuse disorders, and the analysis was of behavioral health claims data from a single managed behavioral health organization. To provide more information to clinicians and policymakers about the rate of formal drug and alcohol treatment to privately insured patients, and to examine the association of patient cost-sharing with substance abuse treatment, we describe the rate of substance abuse treatment and examine the relationship between patient cost-sharing and the utilization of both outpatient and residential substance abuse treatment services among a privately insured population across 41 different health plans with a full range of substance abuse treatment benefits.

2. Methodology

2.1 Data Sources

We studied claims data from 41 benefit plans drawn from 21 employer groups compiled by Ingenix, which provides one of the largest single sources of private health insurance claims available for analysis, and contains information on both behavioral health and

medical services utilization. We chose benefit plans and employer groups in which benefits covered a full range of substance abuse treatment services, including inpatient treatment, residential treatment, and outpatient treatment, and for whom both benefits information and a full year of claims data was available. Plans covered individuals from 45 states and the District of Columbia.

Information on plan benefits was obtained from materials provided to plan participants. Cost-sharing for residential treatment ranged from 10%-20% of the billed amount, or \$100-\$400 per day. Cost-sharing for outpatient treatment ranged from 10%-50% of the billed amount, or \$0-\$25 per session.

2.2 Identification of individuals receiving treatment

Consistent with the "Identification Rate" performance measure proposed by McCorry (McCorry et al., 2000), individuals 18 years and older were selected if during 1999 they had an ICD-9 diagnosis of alcohol or drug abuse or dependence as either a primary or secondary diagnosis in the claims data, or if they received alcohol or drug related services. Service provider information was used to identify individuals with outpatient and inpatient/residential treatment. Service provider and treatment information (excluding laboratory and ancillary services) was also used to identify those individuals receiving any specialty behavioral health treatment, and of those who had received specialty substance abuse treatment.

2.3 Categorization by level of cost-sharing

Three categories of residential cost-sharing were created, based on the level of cost-sharing required by enrollees plan for residential treatment. Individuals who were not required to pay a copayment for residential treatment were categorized as having "No Residential Cost-sharing." Individuals whose plans required coinsurance of greater than or equal to 20% of the bill or a copayment greater than or equal to \$200 per day for residential treatment were categorized as having "High Residential Cost-sharing";

individuals whose plans required coinsurance of less than 20% of the bill or a copayment of less than \$200 per day for residential treatment were categorized as having “Low Residential Cost-sharing.”

Similarly, three categories of outpatient cost-sharing were created, based on the level of cost-sharing required by enrollees plan for outpatient treatment. Individuals whose plans required coinsurance of greater than or equal to 20% of the bill or a copayment greater than or equal to \$20 per session for outpatient treatment were categorized as having “High Outpatient Cost-sharing.” Individuals whose plans required coinsurance of less than 20% of the bill but greater than or equal to 10% of the bill, whose plans required a copayment of less than \$20 per session but greater than or equal to \$10 per session for outpatient treatment were categorized as having “Moderate Outpatient Cost-sharing.” Individuals whose plans required coinsurance of less than 10% of the bill or whose plans required a copayment of less than \$10 per session for outpatient treatment were categorized as having “Low Outpatient Cost-sharing.”

2. 4 Data analysis

Rates are reported as raw numbers and percentages. Means are reported with standard deviations. For comparison of categorical variables, chi-squared tests of proportions were used. T-tests were used for comparison of continuous variables. The relationship between residential SA treatment benefits and outpatient SA treatment benefits was examined using Spearman’s rank correlation coefficient. Multivariate regression models were used to estimate associations of interest, with 95% confidence intervals and P-values used to aid interpretation. Statistical significance was set at the level of $p \leq 0.05$. Analyses were conducted using Stata version 6.0 (Stata Corporation, 1997).

3. Results

3.1 Characteristics and Service Setting of Those Receiving Substance Abuse Treatment

A total of 1230 individuals had drug or alcohol related claims during 1999, from a total population of 332,442 covered lives (0.37%), with the percentage of individuals in plans who met inclusion criteria ranging from 0.12% to 1.2%. The mean age of individuals with a drug or alcohol related claims was 45 (SD=9.9), and 856 (70%) were male. Seven hundred thirty seven individuals (59%) had an alcohol diagnosis, 267 (21%) had a drug diagnosis, 83 (7%) had both drug and alcohol diagnoses (Table 1). The remaining 143 individuals (12%) with a drug or alcohol related claim were identified from substance abuse service provider or treatment information, but had neither a drug or alcohol diagnosis associated with their claims.

3.2 Service Setting of Those Receiving Substance Abuse Treatment

Eight hundred thirty nine (68%) individuals received at least some drug or alcohol treatment from a behavioral health specialist; the remaining 391 individuals (32%) were seen only by non-psychiatric medical providers in non-specialty settings. Relatively little of the behavioral health specialist treatment was provided in substance abuse treatment settings or by substance abuse treatment specialists. Two hundred eleven (17%) individuals received specialized substance abuse treatment as an outpatient; the mean number of substance abuse specialty outpatient visits was 4.1 (S.D.=4.5) (Table 2). One hundred sixty three individuals (13%) received substance abuse treatment at a residential treatment center; the mean duration of residential treatment was 3.4 days (SD=4.8 days).

3.3 Residential and Outpatient Copayment levels

Five hundred sixty two individuals (46%) receiving substance abuse treatment were in plans that required no copayment for residential treatment; 403 (33%) were in "Low Residential Cost-sharing" plans, and the remaining 265 individuals (22%) were in "High Residential Cost-sharing" plans. The median coinsurance in the "Low Residential Cost-

sharing” plans was 10%; the median copayment was \$100. The median coinsurance in the “High Residential Cost-sharing” plans was 20%; the median copayment was \$200.

Three hundred seventy individuals (30%) were in “Low Outpatient Cost-sharing” plans; 516 (42%) were in “Moderate Outpatient Cost-sharing” plans, and the remaining 344 individuals (28%) were in “High Outpatient Cost-sharing” plans. The median copayment in the “Low Outpatient Cost-sharing” plans was \$0 (several of the plans required a nominal payment of \$1-5); none of these plans required coinsurance. The median coinsurance in the “Moderate Outpatient Cost-sharing” plans was 10%; the median copayment was \$10. The median coinsurance in the “High Outpatient Cost-sharing” plans was 20%; the median copayment was \$22.50. There was a significant relationship between plans’ SA residential treatment benefits and plans’ SA outpatient treatment benefits ($r=0.42$, $p<0.001$).

3.4 Copayment levels and Associated Rates of Treatment

Table 2 provides the results of a logistic regression illustrating how receipt of any residential treatment is affected by residential cost-sharing and SA diagnosis, adjusting for age and sex. We found that the likelihood of receiving any residential treatment was significantly lower among individuals with “Low Residential Cost-sharing” or “High Residential Cost-sharing,” compared to individuals with “No Residential Cost-sharing”; individuals with comorbid drug and alcohol diagnoses were more likely to receive any residential treatment than individuals with just an alcohol diagnosis. We also conducted a multivariate regression predicting days of residential treatment for those individuals who received any residential treatment, adjusting for age and sex. Neither residential cost-sharing status nor SA diagnosis significantly predicted days of residential treatment (results not shown.)

In Table 3, we provide the results of a logistic regression predicting receipt of any outpatient specialty SA treatment, adjusting for age and sex. We found that individuals with moderate or high outpatient cost-sharing were less likely than individuals with low outpatient cost-sharing to receive any outpatient specialty SA treatment; individuals with comorbid drug and alcohol diagnoses were more likely to receive any outpatient specialty SA treatment compared to individuals with just an alcohol diagnosis. We also conducted a multivariate regression predicting number of outpatient specialty SA treatment sessions for those individuals who received any outpatient specialty SA treatment, adjusting for age and sex. Individuals with moderate outpatient cost-sharing ($p=0.05$) and high outpatient cost-sharing ($p=0.01$) received significantly fewer outpatient sessions; there was no significant difference in number of outpatient sessions among individuals with different SA diagnoses.

4. Discussion

We found that less than half of one percent of privately insured adults covered by health plans with a broad range of substance abuse services had even a single drug or alcohol treatment-related claim, with rates of treatment within plans ranging from a rate of 0.12%-1.2%. These rates of identification of individuals receiving drug and alcohol treatment are consistent with those previously documented in both commercial HMO populations (Garnick et al., 2002) and populations whose benefits are managed by a managed behavioral health organization (Garnick et al., 2002; Schoenbaum et al., 1998). Drug and alcohol disorders are not uncommon among employed individuals, (Epstein & Gfoerer, 1998), and while rates of substance abuse treatment for insured individuals are higher than rates of treatment seen in the general population, unmet need for treatment remains a problem for many (Woodward et al., 1997). Multiple explanations have been offered for the low rates of documented substance abuse treatment, even among privately insured populations with coverage for a range of treatments. These include individuals' willingness to pay out of pocket to avoid a record of treatment (Garnick et al., 2002),

clinicians' reluctance to use substance abuse treatment codes (Adams, Yuan, Barboriak, & Rimm, 1993), and the alternative of receiving treatment in the public sector (Horgan & Merrick, 2001). For those individuals who choose to have undocumented substance abuse treatment or treatment outside of their health plan, little is known about how their treatment and outcomes differ from individuals whose treatment is within their health plan. Better information is also needed to allow us to understand to what extent the preceding explanations are responsible for the low rates of substance abuse treatment documented, and to what extent the low rates reflect unmet need for treatment, so that strategies can be developed to identify and engage in treatment those privately insured individuals whose needs are unmet in the current system.

We also found that the level of cost-sharing required under a health plan's benefits is significantly associated with rate of substance abuse treatment. Individuals receiving treatment for drug or alcohol problems in plans with no residential cost-sharing were significantly more likely to participate in residential treatment than individuals in plans with residential cost-sharing, while individuals with low outpatient cost-sharing were more likely to participate in outpatient SA treatment than individuals in plans with moderate or high outpatient cost-sharing. There was no significant difference in the duration of residential treatment between plans with different levels of cost-sharing; however, individuals in plans with less cost-sharing did receive more treatment. Prior studies have shown that coinsurance affects the utilization of mental health services (Keeler, Manning, & Wells, 1988), but there has been little examination of the effect of cost-sharing on substance abuse services (Stein et al., 2000). The possibility that cost-sharing acts as a barrier to residential treatment is of concern at a time when residential treatment appears to be becoming an increasingly utilized treatment modality (Stein et al., 1999; Sturm et al., 1999), substituting for 28-day hospital inpatient programs that were more heavily used prior to managed care.

Equally concerning, however, is that across all benefit plans, residential substance treatment stays were relatively brief, and individuals receiving substance abuse specialty outpatient treatment had relatively few visits. Decreases in the amount of time spent in intensive treatment are supported by research showing similar treatment outcomes with shorter intensive treatment stays, provided the subsequent outpatient treatment is adequate (Long et al., 1998). The relatively limited amounts of specialty substance abuse treatment seen across all plans in both residential and outpatient settings suggest, however, that this increase in outpatient services to compensate for limited intensive services may not be occurring. In fact, the average number of days of residential treatment and the average number of sessions of outpatient treatment observed is far less than many experts believe is needed to produce positive outcomes.

A strength of this study is its use of claims data from multiple plans that provide coverage for a broad range of substance abuse services; many plans do not include coverage for a variety of substance abuse treatment services, including both outpatient and inpatient treatment (U.S. Department of Labor Bureau of Labor Statistics, 1998). Claims data, however, whose primary purpose is documentation for reimbursement and not research, has some inherent limitations that have long been recognized (Garnick, Hodgkin, & Horgan, 2002). Clinicians may underreport substance abuse treatment sessions, preferring to code the visit as a medical or mental health visit if their experience has been that claims for substance abuse treatment are less likely to be fully reimbursed (Garnick et al., 2002). This may affect the total number of individuals identified as receiving specialized substance abuse treatment services, but may be less of a problem for the analysis of residential treatment services, given the specialization of these facilities in substance abuse treatment. We have no information about the nature of the employee group, the type of health plans, the non-cost-sharing aspects of plan benefits such as day/session limits, or the management of the substance abuse treatment benefits, all of which may affect service utilization. Finally, we have no information about the prevalence of substance abuse disorders among individuals covered by these health plans,

the severity of individuals' substance abuse disorders, the accessibility of specialty SA treatment services, nor what the process of treatment is like for individuals receiving substance abuse services.

Despite these limitations, our analysis suggests that relatively few privately insured individuals are receiving formal substance abuse treatment covered by their insurance, and that greater levels of patient cost-sharing may decrease the likelihood that an individual receives any specialty substance abuse treatment. Any barriers to appropriate treatment of individuals with substance abuse problems are concerning, as "we cannot afford not to treat those with severe substance abuse problems" (Office of National Drug Control Policy, 1999b), and the impact of cost-sharing is increasingly relevant as employers seek ways to pass on a share of increasing health care costs to employees. The low rates of formal treatment, and potential barriers to substance abuse treatment resulting from benefit design, should be part of any discussion of parity for substance abuse treatment benefits.

Table 1. Characteristics of Privately Insured Individuals Receiving Drug or Alcohol Treatment

	All Individuals Receiving Drug or Alcohol Treatment (n=1230)
Age (mean, s.d)	45 (9.9)
Male	70%
Alcohol Diagnosis only	59%
Drug Diagnosis Only	22%
Both Drug and Alcohol Diagnosis	7%
Any Residential Treatment	13%
Days of Residential Treatment (s.d)	3.4 (4.8)
Any Outpatient Specialty Substance Abuse Treatment	17%
Number of Specialty Substance Abuse Outpatient visits (mean, s.d)	4.1 (4.5)
Enrolled in plans with:	
No Residential Cost-sharing	46%
Low Residential Cost-sharing	33%
High Residential Cost-sharing	21%
Low Outpatient Cost-sharing	30%
Medium Outpatient Cost-sharing	42%
High Outpatient Cost-sharing	28%

Table 2 Odds ratios (OR) of any residential SA treatment with adjustment for age and sex

	Any Residential SA Treatment		
	%	Odds Ratio	95% CI
No Residential Cost-sharing	17	1	
Low Residential Cost-sharing	10	0.51**	0.34-0.76
High Residential Cost-sharing	9	0.48**	0.30-0.78
Alcohol Diagnosis only	12	1	
Drug Diagnosis Only	9	0.76	0.47-1.22
Both Drug and Alcohol Diagnosis	34	3.70***	2.21-6.21

**P<.01 for the logistic regression with adjustment for age and sex

***P<.001 for the logistic regression with adjustment for age and sex

Table 3 Odds ratios (OR) of any outpatient SA treatment with adjustment for age and sex

	Any Outpatient SA Treatment		
	%	Odds Ratio	95% CI
Low outpatient Cost-sharing	29	1	
Moderate outpatient Cost-sharing	10	0.22***	0.14-0.32
High outpatient Cost-sharing	15	0.38***	0.25-0.58
Alcohol Diagnosis only	14	1	
Drug Diagnosis Only	10	0.85	0.53-1.35
Both Drug and Alcohol Diagnosis	30	2.87***	1.65-5.01

**P<.01 for the logistic regression with adjustment for age and sex

***P<.001 for the logistic regression with adjustment for age and sex

Chapter 5

The Effect of Copayments on Drug and Alcohol Treatment Following Inpatient Detoxification Under Managed Care

(as published in *Psychiatric Services*, February 2000, 51:2, pages 195-198)

Abstract

Objective: The study examined the rate and duration of outpatient substance abuse treatment following inpatient detoxification under managed care. **Methods:** Seven years of claims data from a large behavioral health care carve-out plan were used to identify patients. Rates and duration of formal substance abuse treatment following detoxification were calculated, and regression models were used to explore factors that may affect participation in treatment. **Results:** Seventy-nine percent of the detoxification patients received formal substance abuse treatment, the majority within the week following discharge. Formal follow-up care lasted an average of ten weeks, with visits occurring on average about once a week. When other variables likely to influence participation in substance abuse treatment were controlled for, the level of outpatient copayments significantly affected the rate of participation in treatment. **Conclusions:** These findings indicate that the rate of participation in outpatient treatment after detoxification is high, but room for improvement remains. The results suggest that reducing copayment levels is one mechanism for increasing the likelihood that individuals with severe drug and alcohol problems will receive subsequent treatment. The need for such treatment is underscored by the severity of illness in those who undergo detoxification and the societal costs of untreated substance use disorders.

Substance use disorders are one of the most significant public health issues facing the United States (Califano, 1998), costing taxpayers up to \$276 billion a year (Harwood, Fountain, & Livermore, 1998). More than 11 percent of American adults are affected by

these disorders annually (Kessler et al., 1994), and an estimated five million Americans need drug and alcohol treatment.(Epstein & Gfoerer, 1998)

For many individuals with severe alcohol and drug problems, detoxification is the beginning phase of their treatment. Without follow-up to an appropriate level of care, however, detoxification alone is an inadequate use of limited resources (Wesson, 1995). Detoxification is associated with lasting improvements only when patients receive continued rehabilitative care (Gerstein & Harwood, 1990; Institute of Medicine, 1990a). As the Institute of Medicine reports, "Consistently, without subsequent treatment, researchers have found no effects from detoxification that are discernibly superior to those achieved by untreated withdrawal." (Gerstein & Harwood, 1990). Despite the importance of the issue, few studies have examined the rate and patterns of substance abuse treatment following detoxification. Existing studies focus primarily on the delivery of public services (Booth, Cook, Blow, & Bunn, 1992; Kirk & Masi, 1978), yet the majority of illicit drug users and alcoholics are employed. (Substance Abuse and Mental Health Services Administration, 1998) The private sector now accounts for as much as 41 percent of substance abuse treatment expenditures (Gerstein & Harwood, 1990; Rogowski, 1992). These facts, coinciding with the dramatic growth of managed behavioral health care, have raised concerns about the potential impact of managed care on the quality of care for individuals with substance use disorders (Chang et al., 1998; McLellan et al.). More empirical evidence about drug and alcohol treatment in the private sector is needed to inform the discussion of these issues.

The goal of our research is to contribute to the understanding of care for substance use disorders in the private sector. We describe the rate of subsequent drug and alcohol treatment, as well as the duration and intensity of treatment once initiated, for inpatient detoxification patients in behavioral health carve-out plans. We then explore how these outcomes are affected by benefit structure- copayment amount- after controlling for other variables that previous research suggests may be relevant. (Booth et al., 1992; Lawental, McLellan, Grissom, Brill, & O'Brien, 1996; Newhouse, 1993; Sturm et al., 1995; Wesson, 1995)

Methods

We studied claims data from 14 employer groups whose behavioral health care benefits are managed by United Behavioral Health (UBH), the third largest managed behavioral health care organization in the country. More information about the full data base and benefit design was provided by Sturm and McCulloch (Sturm & McCulloch, 1998).

Table 1: Characteristics of 1,062 patients receiving detoxification

Characteristic	N	%
Received Follow-up		
Yes	834	78.5
No	228	21.5
Gender		
Male	701	66.6
Female	352	33.4
Member type		
Employee	677	63.7
Spouse	325	30.6
Child	60	5.6
Diagnosis		
Alcohol only	645	60.7
Drug only	223	21.0
Alcohol and drug	151	14.2
Mental Health	43	4.0

Patients were selected if they had received inpatient detoxification services between 1991 and 1997, their coverage continued for at least three months following the inpatient stay, and their employer plans covered a full range of behavioral health services, including detoxification, substance abuse, and mental health treatment.

Patients with alcohol-related problems were authorized for detoxification if they had a Clinical Institute Withdrawal Assessment (CIWA) score of 15 or greater (Sullivan, Sykora, Schneiderman, Naranjo, & et al., 1989) or were otherwise at significant risk for withdrawal. Patients with problems not related to alcohol were not assessed using a specific scale. Instead, they were authorized for detoxification if they were clinically judged to be at a similar risk for physiologic withdrawal, or if their cases were complicated by other factors or comorbid conditions.

We calculated rates, duration, and intensity of follow-up treatment and used logistic regression was used to predict whether follow-up treatment was received within 30 days of hospital discharge. We also used survival curve analysis to characterize the duration of follow-up care for 180 days following inpatient discharge. Patients whose coverage ended before that time were treated as censored. Outpatient treatment was considered continuous as long as there were no more than 30 days between consecutive outpatient visits. Intensity of follow-up treatment was calculated as the average number of days between sessions during the first month and from months two to six after discharge. Patients who received only one outpatient session were not included in these calculations so that our estimate of treatment intensity would not be inflated. All sessions occurring within the first 30 days following discharge were incorporated into the calculation of one-month treatment intensity. Only subjects who remained in outpatient treatment for at least 31 days were included in the two- to six-month calculation.

In addition to copayments for follow-up care (in dollars per visit), variables controlled for in the modeling of follow-up rates included age, gender, type of member (distinguishing employees from child and adult dependents), type of diagnosis, year of treatment, and duration of inpatient stay. Robust standard errors (Liang & Zeger, 1986; Schluchter, 1988) were used to correct for clustering of patients within employers.

RESULTS:

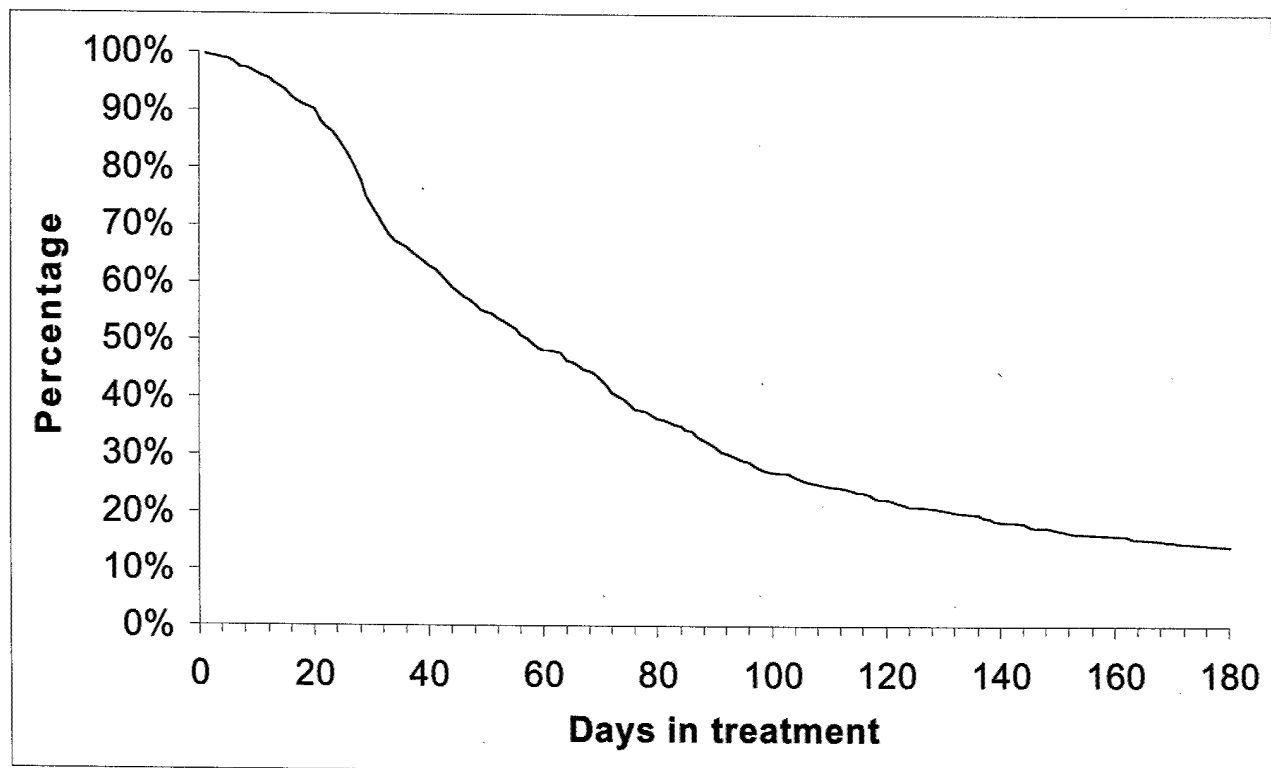
A total of 1,062 patients from 14 employer groups met the inclusion criteria. Their mean \pm SD age was 40.5 \pm 11.1 years, and their inpatient detoxification hospitalization had been for a mean \pm SD of 4.2 \pm 6.4 days. Their mean \pm SD outpatient copayment was \$12.3 \pm \$7.3. Other demographic and clinical characteristics of the sample are shown in Table 1. The majority of patients, 79 percent, received follow-up treatment within 30 days of hospital discharge.

Among the 834 patients who received follow-up care, 74.3 percent (N=620) were seen within a week, and 92 percent (N=768) received care within two weeks. Outpatient treatment lasted a mean \pm SD of 75 \pm 112 days; 55.5 percent (N=463) of patients initially received intensive outpatient therapy, which consists of more frequent visits, often for greater duration, than occurs in traditional outpatient therapy. A total of 29.9 percent of patients (N=249) received residential care, and 14.6 percent (N=122) received traditional outpatient therapy. The 561 patients who received more than one outpatient session averaged one session every 4.7 \pm 3.6 days in their first month and one session every 11.9 \pm 9.9 days in the second through sixth months of outpatient treatment.

The logistic modeling of follow-up care revealed that the likelihood of follow-up decreased significantly with increasing outpatient co-payment (OR= .97, $p < .05$). To get a clearer picture of the copayment effect, we estimated the change in follow-up rates among patients not receiving follow-up with copayments of \$30, \$20, \$10, and \$0. Controlling for the effects of other variables, we would predict a 43 percent increase in the number of subjects not receiving follow-up if copayments were held constant at \$30, and a 19-percent increase if copayment were \$20. Conversely, a 24-percent decrease could be expected in the number of people not receiving follow-up if no copayment were required, and a 5-percent decrease if the copayment were \$10.

Figure 1 presents a survival analysis curve for the duration of care. Half the sample of patients who received follow-up care remained in outpatient treatment after 60 days, and 25 percent were still in formal treatment after three months.

Figure 1: Proportion of patients in substance abuse treatment following detoxification (N=834) who remained in treatment up to 180 day



Discussion and conclusions

The results of this study indicate that in one of the largest national behavioral health care carve-out organizations, the proportion of individuals receiving formal substance abuse treatment following inpatient detoxification is relatively high (79 percent). Although we are not aware of any similar studies that would permit a direct comparison, this rate of follow-up care after inpatient detoxification is substantially higher than that seen in populations that are not insured privately (Booth et al., 1992; Kirk & Masi, 1978). The rate of follow-up in this study is also substantially higher than the national average of follow-up care after hospitalization for depression reported in the National Committee for Quality Assurance Health Plan Employer Data and Information Set (67 percent in 1997)(NCQA, 1998).

Statistics for patients who did receive treatment were also somewhat encouraging. The length of time between discharge and follow-up care was relatively brief, with most initial sessions occurring within one week and over 90 percent within two weeks. This result is substantially better than that seen in a Veterans Administration population (40 percent of patients seen within four weeks) (Booth et al., 1992). For more than 85 percent of patients, initial treatment after detoxification was at an intermediate level of care, such as residential treatment or intensive outpatient, rather than at a less intensive level of care (i.e., outpatient treatment). This pattern is consistent with the treatment philosophy of the American Society of Addiction Medicine, whose set of Patient Placement Criteria envisions patients moving along a continuum of care to the least restrictive setting that meets their needs (American Society of Addiction Medicine, 1996).

The intensity and duration of treatment results are also encouraging, since they indicate that the majority of patients participated in more than a few treatment sessions following their discharge. In the first month after discharge, nonresidential patients who received at least two sessions averaged more than one treatment session a week. Not surprisingly, the frequency declined over time, but even in the second through sixth months of treatment, patients averaged more than one session every other week. Fifty percent of

individuals participated in subsequent treatment for at least two months following discharge, and more than a quarter for three months or longer. It thus appears that many patients receive more than cursory treatment, although in this sample the treatment often appeared to be less intensive than what many addiction therapists believe is necessary to achieve an optimal outcome (Hoffman & Miller, 1992; Hu et al., 1997).

Despite these generally encouraging findings, room for improvement remains. The fact that more than 20 percent of the subjects did not receive any treatment is cause for concern, given the severity of illness in most patients requiring detoxification, the tremendous personal and societal costs associated with severe drug and alcohol abuse, and the poor outcomes associated with patients who do not receive treatment following detoxification.

Our results suggest that outpatient copayment levels may significantly influence the rate at which discharged detoxification patients enter subsequent treatment. In our sample, after controlling for several other variables likely to affect participation in outpatient treatment, the waiving of all outpatient copayments would have resulted in a predicted decrease of 24 percent in the number of patients not receiving subsequent treatment. This result is particularly striking since the plans included in our study generally had quite low copayments compared to the typical substance abuse copayment of 50 percent (Sturm & McCulloch, 1998). If generalizable, our estimates imply that, by waiving the more typical copayment amount of \$30, the rate of nonparticipation in substance abuse treatment among detoxification patients could be cut by almost 50 percent.

The carve-out plans in our sample had relatively generous detoxification and substance abuse benefits, and our findings may not generalize to more restrictive plans or to plans with different management styles. We are also unable to comment on the quality or appropriateness of the treatment provided. Limitations related to the use of claims data include the possibility that some treatment, such as out-of-plan treatment or treatment sessions affected by a deductible, might not be observed. Claims data also does not contain the rich clinical and outcomes data that would permit us to answer many of the

other important questions about the treatment of substance use disorders; examples of such data are the primary drug of addiction, rate of relapse, participation in Alcoholics Anonymous or Narcotics Anonymous, and patient satisfaction.

Despite these limitations, this study provides important information about treatment of severe substance use disorders under the most common type of managed behavioral health care. Contrary to the concerns of many, a substantial number of patients appear to have participated in a reasonable number of treatment sessions subsequent to their discharge from inpatient detoxification.

An equally important finding, however, is the substantial effect copayments appear to have on the rate of participation in subsequent treatment. We do not know whether increasing the number of patients who receive treatment through the reduction of copayments would improve outcomes. But evidence is sufficient that without subsequent treatment, substance abuse patients are no more likely to have a successful outcome than if they had not undergone detoxification.

Federal policy makers at the Office of National Drug Control Policy have acknowledged that we cannot afford not to treat those with severe substance abuse problems (Office of National Drug Control Policy, 1999a). Our study suggests that improved coverage, such as that proposed in the recently introduced substance abuse parity bill, may improve treatment participation following detoxification among this population. Further research is needed to determine whether increased treatment participation is associated with improved outcomes following detoxification, however. By implementing and evaluating programs that waive outpatient copayments for patients completing an inpatient detoxification program, managed behavioral health care organizations can contribute to efforts to improve the treatment of drug and alcohol disorders

Chapter 6

Discussion of Findings

This dissertation makes an important contribution to our understanding of the current system of drug and alcohol treatment of the privately insured and how financial and organizational factors influence treatment under managed behavioral health care. The results of the first analysis illustrate that it is misleading to refer to “substance abuse treatment under managed care” or “behavioral health treatment under a carve-out.” It documented a substantial change in both substance abuse treatment utilization and cost when a population was moved from a HMO to a carve-out, and found that the changes in substance abuse utilization are quite different than that seen for mental health utilization. The second analysis examines the percentage of individuals receiving any substance abuse treatment service across 41 plans. This work demonstrates the feasibility of the “identification rate” as a quality indicator, but simultaneously raises questions about the implications of such a low percentage of individuals receiving documented treatment. The second analysis also demonstrates that the level of an individual’s copayments may affect the utilization of substance abuse treatment services. The third analysis examines treatment and the effect of copayments among the most severely ill individuals with drug and alcohol problems, those requiring detoxification. Here, another substance abuse quality indicator, participation in substance abuse treatment after detoxification, is examined, and found to be substantially affected by even low levels of copayments. Each of the analyses makes a contribution to our understanding of specialty substance abuse care among privately insured populations and the role that organizational and financial factors play in the delivery of substance abuse care to privately insured populations; by viewing the findings across all three analysis, one is able to identify additional issues, discussed below, that may inform future research regarding substance abuse treatment among the privately insured.

Low rates of formal substance abuse treatment

Repeated surveys have left little doubt that use of illicit drugs and alcohol is a significant problem for employed individuals and their families (Substance Abuse and Mental Health Services Administration, 2001), and estimates suggest that the unmet need for treatment is similar to that found in the overall population. (Woodward et al., 1997) Substance abuse treatment experts have long recognized the importance of identifying individuals with substance abuse problems and engaging them in treatment. For the individuals who do enter drug and alcohol treatment, longitudinal studies in both public and privately insured populations have shown that treatment decreases substance use, decreases criminal behavior, and increases social functioning such as employment (Anglin & Hser, 1990; Gerstein & Harwood, 1990; Gerstein et al., 1994; Holder & Blose, 1986, 1992; Hubbard et al., 1997; Hubbard et al., 1989; Simpson et al., 2002)

Given this context, the finding that only 0.37% of covered individuals in 41 plans covering a full range of substance abuse treatment modalities had even a single claim for treatment of a drug or alcohol disorder during 1999, a finding comparable with other studies of both HMOs and MBHOs, (Garnick et al., 2002; MEDSTAT Group, 2001; Schoenbaum et al., 1998) certainly gives one pause. Viewed in light of estimates of the number of individuals in need for drug and alcohol treatment ranging from 2%-5% of adults in the United States (Epstein & Gfoerer, 1998; Woodward et al., 1997), and Woodward's estimate that somewhat less than half of individuals who need treatment are treated, (Woodward et al., 1997) it suggests that drug and alcohol treatment being received by many privately insured individuals is either not being documented as such, that they are receiving such treatment outside of their insurance plan or are substituting self-help groups such as Alcoholics Anonymous for formal treatment, or that the percentage of privately insured individuals requiring substance abuse treatment receiving treatment is far lower than the percentage of individuals requiring treatment being treated in the public sector. Individuals may have very good reasons for not wanting to submit claims for drug and alcohol treatment. For some, it may be concerns about confidentiality or possible negative consequences of having an insurance record of drug and alcohol treatment. For others, it may be the relatively poor insurance coverage of drug and

alcohol treatment benefits (or lack of any benefits) covering many types of drug and alcohol treatment, and the alternative of receiving treatment in the public sector. There are also reasons clinicians might prefer not to document drug and alcohol treatment, primarily having to do with concerns about reimbursement.

Further research is needed to understand more about individuals with drug and alcohol problems who are not identified by claims data as receiving treatment. How many of these individuals are truly receiving no treatment, and how many are being treated in such a way that is not being captured by claims data? For the individuals receiving this treatment, who are they receiving treatment from? Why are they not being captured in the claims data? What is the nature and quality of the treatment they are receiving, and how does it compare to the treatment received by individuals whose treatment is captured by the claims data? Efforts to assess the quality of substance abuse treatment (either through claims data or chart review) available to privately insured individuals are important and will provide information about the treatment being received within the plan by individuals. Several of the analyses in this dissertation illustrated that creating such quality indicators from claims data is feasible. A more challenging problem, however, is identifying the rate of unmet need for substance abuse treatment among privately insured individuals. Numerous studies have shown that patients with drug or alcohol problems are frequently not given a substance abuse related diagnosis. (Baird, Burge, & Grant, 1989; Barnett et al., 1998; Coulehan, Zettler-Segal, Block, McClelland, & Schulberg, 1987; Gale, White, & Welty, 1998; Kirkpatrick, Johnson, Earp, & Fletcher, 1988; Moore & Malitz, 1986) Efforts to identify privately insured individuals requiring substance abuse treatment are also suspect, given that respondents may not be candid; recent studies, however, suggest that this problem is not insurmountable, as incorporating such questions in questionnaires covering a variety of health related behaviors may limit response bias. (Babor, Stephens, & Marlatt, 1987; Fleming & Barry, 1991; Wallace & Haines, 1985) These challenges do limit the ability of researchers to accurately estimate percentage of privately insured individuals with undetected substance abuse. However, until more is known about unmet need for substance abuse treatment, and the substance abuse treatment of privately insured individuals that is not being

captured in administrative data, it will be important to interpret findings with the knowledge that they may not provide accurate information about the status of all of the privately insured individuals who require such treatment.

While the average rate was quite low, substantial variation was also found among plans in the percentage of individuals who had a claim for treatment of a drug or alcohol disorder. The “*identification rate*” of individuals receiving drug and alcohol treatment within the plan, as documented by claims for drug or alcohol related treatment services, ranged from 0.12% of covered individuals to 1.2% of covered individuals. Further research is needed to better understand this variation. Why is there such a tremendous variation across plans? It is possible that this “identification” of individuals receiving drug and alcohol treatment may be an important indication of plan quality, as suggested by the Washington Circle Group.(McCorry et al., 2000) Important differences may also result from using primary diagnosis only vs. both primary and secondary diagnoses; Garnick and colleagues found that less than 10% of patients with any substance abuse diagnosis had only a secondary diagnoses of substance abuse in an analysis of 1997 Medstat data (personnel communication, Deborah Garnick, November 2002).

An alternative explanation is that the differences seen may stem from the industries being covered. An extreme example is that individuals who are airline pilots might be far less willing to submit claims documenting drug and alcohol treatment than might individuals who perform in rock bands. If such systematic differences between different populations or industries were the source of variation in this indicator, it would be problematic to use an “identification” indicator as a measure of health plan quality without case mix adjustment. Recent work relating “identification rates” in several large managed care plans to national estimates of need for substance abuse services using data from the National Household Survey on Drug Abuse found that adjusting for case mix using age and gender did not significantly change the results, (personnel communication, Deborah Garnick, November 2002) but further research is needed in the area of case mix adjustment.

Finally, the low rate of any drug or alcohol treatment documented in claims data should inform discussions of policy changes designed to improve the treatment of individuals with substance abuse problems. To date, many of these discussions have focused on parity of substance abuse benefits, with many employers voicing concerns that parity would be very expensive. Sturm and colleagues' work, however, has suggested that substance abuse benefit parity would not be very costly if comprehensively managed (Sturm et al., 1999), a finding consistent with what was found in the HMO / carve-out analysis presented above. The findings in this dissertation suggest that parity might have a significant affect on the treatment of individuals who have been identified as having drug and alcohol problems or are already engaged in treatment; these findings, however, may be limited to those individuals, and not generalizable to the broader privately insured population. Further research is needed to understand the impact of a change in benefit design on the drug and alcohol treatment of individuals needing treatment who have not been identified as having a drug or alcohol problem and are not currently receiving services, as well as individuals who have chose to receive such services outside their health plan.

Managed care, health plan benefits, and formal substance abuse treatment

While many privately insured individuals in need of drug and alcohol treatment do not receive such treatment or receive it in such a way that it is not covered by their health plan, many individuals do receive such treatment within their health plan. A better understanding of how health plan benefits may influence the clinical care received by patients helps insurers and employers design benefits to encourage patients to get needed care while efficiently using limited resources.

One finding is that patient copayments significantly influence patient behavior with respect to receiving substance abuse treatment. The finding that the more people have to pay for a service, such as substance abuse treatment, the less demand there is for the service, is of no surprise to anyone with even introductory training in economics. Indeed, this finding is not new to either medicine or behavioral health care- there have been many

studies of both mental health and medical care that have examined the relationship between copayments or coinsurance and the use of services. (Hankin, Steinwachs, & Elkes, 1980; Keeler et al., 1988; Manning, Wells, Duan, Newhouse, & Ware, 1986; Simon, VonKorff, & Durham, 1994; Wallen, Roddy, & Meyers, 1986) The fact that requiring higher payments of patients reduces mental health service utilization in both fee-for-service settings and HMOs (Keeler et al., 1988; Simon, Grothaus, Durham, VonKorff, & Pabiniak, 1996; Simon et al., 1994; Wells et al., 1996) has long been known and is generally accepted by employers, insurers, and providers. However, comparable work has not been done in the area of drug and alcohol treatment. The reason for the lack of research in this area is unclear. It may relate to the historical philosophical differences between substance abuse treatment providers (many of whom identify with the 12-step and other social models) and medical and psychiatric providers (who primarily adhere to the medical model). It may also grow out of the belief of many substance abuse treatment providers that willingness to pay for treatment serves as a concrete indicator that a patient has moved from the "contemplation" and "preparation" stages of change to the "action" stage and is truly ready to engage in treatment for their drug or alcohol problem.

This dissertation also demonstrates that there is a significant association between the level of cost-sharing required under a health plan benefit package, and the receipt of residential and outpatient substance abuse treatment services. The analysis of the effects of copayments on treatment following detoxification extends this analysis in two important ways. In comparison to the examination of individuals who had received some substance abuse treatment service, analyzing the treatment of patients who have participated in detoxification focuses on a severely ill population for whom substantial resources have already been spent to prepare them for treatment, but who have not actually received any treatment for their drug and alcohol disorder. Also, in an analysis of the effects of cost-sharing on participation in residential treatment, one must recognize that the high unit cost of residential treatment often increases the absolute dollar amount of the copayment faced by the individual. However, it is possible that the elasticity of demand for substance abuse services is not linear, and that cost-sharing required for less

expensive outpatient services, such as those often provided after detoxification, might not show the same relationship as seen in the residential treatment analysis.

The research presented in this dissertation begins to provide the drug and alcohol field with empirical work similar to that which exists in other fields, demonstrating that individuals in drug and alcohol treatment respond to copayments in a manner similar to patients in other areas of medicine and behavioral health care. Further work, however, is required to understand the effect of copayments on the quality and appropriateness of substance abuse treatment. The effect of copayments on substance abuse treatment after detoxification suggest that copayments may pose a burden to many patients and discourage them from seeking and remaining in treatment. These findings also raise questions about whether patient copayments, a strategy long recommended by some substance abuse providers as a way of reinforcing patients' commitment to treatment, may be counter-productive.

The decreased rate of receipt of residential drug and alcohol treatment services and the reduced rate of any drug and alcohol treatment after detoxification seen in patients with higher copayments must also be considered in light of the unmet need for drug and alcohol treatment among the privately insured. Higher copayments are one mechanism to reduce the demand for services for which there is inappropriate overuse. However, with respect to the treatment of individuals with drug and alcohol problems, it appears that underutilization is more of a problem than overutilization, with many individuals never receiving needed treatment, and treatment durations that are often less than optimal among those that receive treatment. (Hoffman & Miller, 1992; Hu et al., 1997) The extent to which copayments reduced inappropriate drug and alcohol treatment was beyond the scope of this dissertation; however, this information would also be an important part of a balanced discussion of the role of copayments in substance abuse treatment.

Still, the appropriateness of using a mechanism which decreases utilization (copayments) in a situation in which treatment appears to be both underutilized and potentially cost-effective is a question worthy of further consideration. Given the current system of drug

treatment funding for the privately insured, an easy solution is not readily apparent. The costs of drug treatment for the privately insured are usually borne by the insurer, employer and/or the patient. However, the costs of undertreatment, and the benefits of successful treatment, are often borne by other parts of society. These include employers (absenteeism, reduced job productivity, substance related injuries at work), the criminal justice system (crimes while intoxicated, crimes to obtain money to buy drugs), and the medical system (trauma, drug and alcohol related illnesses). (Harwood et al., 1998)

Despite the societal benefit likely to result from engaging as many individuals with substance abuse problems as possible in effective substance abuse treatment, there is little incentive for the insurance companies to increase utilization of substance abuse treatment services. As a result, efforts to modify benefits in a manner that decreases the level of unmet need for substance abuse treatment through their health plan among the privately insured may require some sort of government intervention.

This dissertation, while making an important contribution by beginning the examination of the effect of benefits on substance abuse treatment, is only the beginning of the work that needs to be done with respect to cost and demand for substance abuse treatment services. While beyond the scope of this dissertation, further analyses are needed to extend the work presented here. This dissertation examined substance abuse treatment among individuals in plans with relatively generous substance abuse treatment benefits. The effect of copayments on individuals in plans whose benefits are not as comprehensive as those of the plans examined in this dissertation may systematically be different. Also, given the finding in the HMO/carve-out analysis that there was a difference in types of utilization between different types of managed care, researchers examining treatment for drug and alcohol treatment under different types of managed care may very well wish to examine whether demand is more price-elastic under different types of managed care arrangements.

This dissertation also showed that substance abuse treatment service utilization changes when the management of a population's behavioral health care was transferred to a MBHO from a carve-out. This finding emphasizes the importance of examining

differences between different types of managed care arrangements, as well as differences between managed care and non-managed care. Clinicians, policymakers, and the public often refer to the problems that occur under a monolithic "managed care," yet despite the public and policymakers' attention to this issue, to date there has been no systematic study of the pattern of utilization or quality of substance abuse care associated with the carve-in vs. carve-out status of behavioral health benefit management. Several years ago, McGuire and Shatkin (McGuire & Shatkin, 1991) pointed out the data gap for drug abuse treatment, and suggested that studies with access to large data sets of claims or use of services are necessary. One reason why there has been little progress has been researchers' difficulty in obtaining proprietary data from private companies. As a result, most research in the past has therefore been limited to case studies of alcohol treatment in a small number of employers, (Holder & Blose, 1986, 1992) or public programs like Medicaid and Medicare (Larson et al., 1994; Cartwright and Ingster, 1993).

This dissertation make a contribution by providing some of the first empirical evidence of significant differences in the treatment of individuals with drug and alcohol problems under different types of managed care. Specifically, when substance abuse treatment is managed under a carve-out, utilization may be significantly different than when it is managed under an alternative system, such as an HMO. However, the comparison between one carve-out and several HMOs looked only at utilization and costs in those individuals seeing specialty providers, and did not examine differences in proposed substance abuse quality indicators. There is important future work to be done understanding the impact of various types of managed care arrangements, such as carve-outs and HMOs, on the treatment of individuals with drug and alcohol problems. Not only may there be important differences between HMO's and carve-outs, but drug and alcohol treatment services may be carved-out to MBHOs in different ways that may also affect how care is managed. Garnick and colleagues have discussed the various ways in which employers and managed care organizations may carve-out services – employers may contract with managed care organizations, or may contract directly with MBHOs, and managed care organizations may either manage substance abuse treatment services internally, or may contract with a MBHO. (Garnick et al., 2002) These alternatives have

important implications for where organizational responsibility for drug and alcohol treatment services reside, and potentially could affect utilization, costs, or the quality of clinical services. Their work has also shown that the level of risk assumed by an MBHO varies by the nature of the product offered by the managed care organization with whom the MBHO is contracting. (Garnick et al., 2001) Sturm examined a different source of variation related to the risk sharing arrangement between the employers and the MBHO—whether the MBHO is fully at risk, or whether the employer retains the majority of the risk (commonly seen in contracts for administrative services only (ASO)). (Sturm, 2000) In an analysis of 87 carve-out plans managed by UBH, Sturm found that full risk plans had significantly lower costs per use without changing access. Given the evidence presented in this dissertation and elsewhere that there may be important variations in substance abuse treatment across different types of managed care arrangements, further work needs to examine differences in utilization and costs and clinical quality indicators across various types of managed care arrangements, in order for there to be an informed discussion of substance abuse treatment under managed care.

Substance abuse treatment quality indicators

The information generated by the analyses in this dissertation will also be useful as increasing efforts are made to develop and refine substance abuse treatment quality indicators as a way of documenting the quality of substance abuse care being provided in different health plans. For many clinicians and employees, concerns about managed behavioral health care's growth has focused on its impact on quality as well as access to behavioral health services, with particular concerns being drug and alcohol treatment (Chang et al., 1998; McLellan et al.) and behavioral health carve-outs (Oss & Clary, 1999). Clinicians claim that compared to plans in which behavioral health benefits are carved-in, the separate management of services that occurs in a carve-out may decrease the coordination of care with medical providers, promoting cost shifting at the expense of quality patient care. (Jackson, 2000) Yet proponents of carve-outs argue that carve-outs use of clinical information in managing care may lead to more appropriate care rather than less appropriate care. Unfortunately, there is currently an absence of studies examining the quality of substance abuse care under managed care that shed light on this

issue, but the absence of data has not prevented provider organizations from leading an assault on managed care, and specifically on carve-outs. The American Society of Addiction Medicine has expressed a concern that treatment tailored to the needs of the individual, allowing patients to move through treatment in multiple levels of service along a continuum of care (American Society of Addiction Medicine, 1996) may not be occurring. The “shift toward managed care has also been associated with a drastic reduction in frequency and duration of inpatient hospitalization, even for many patients who require this level of treatment intensity.” (American Society of Addiction Medicine, April 1999) This concern has been supported by the finding that privately insured individuals frequently do not have access to treatment along an entire continuum of care. (Buck et al., 1999) Concerns about treatment under managed care also include questions about patients' access to different types of drug treatment services, the quality of services being provided, and the overall impact of economic incentives on the delivery of services.

The development of useful and implementable quality indicators are needed so that researchers and policymakers might have data about the quality of substance treatment services; despite the recognition of their importance, however, quality indicators and performance measures have not been widely developed for use in the drug and alcohol treatment area. Such clinical quality measures would allow comparisons across different types of managed care, but are often difficult to implement in behavioral healthcare. There is hope that their use will become more widespread as issues of clinical quality becomes increasingly important to employers and other purchasers of health plans, (Merrick et al., 1999) and as the indicators themselves are developed, refined, and tested on administrative data from a broad range of health plans. (Garnick et al., 2002)

The analyses in this dissertation included two different substance abuse treatment quality indicators that have been proposed by the Washington Circle Group, *identification* and *detoxification linkage to services*, (McCorry et al., 2000) and are among the first that have attempted to examine potential quality indicators for drug and alcohol treatment using claims data. This dissertation shows that it is feasible to create these types of

quality indicators using administrative data that is likely to be available to health plans. This preliminary work done, by others, and in this dissertation, is an important early step towards refining such measures for broader use, and the findings and experiences should inform future efforts to develop this area.

At the same time, the work presented here highlights some of the important limitations that must be considered during future efforts to develop substance abuse quality indicators. The Ingenix database was used to assess *identification* of individuals receiving any drug and alcohol treatment service because the data contained information on services provided by both medical providers and specialty behavioral health providers. Since carve-out data, such as that provided by UBH, commonly does not contain information about services provided by non-specialty providers, one would not be able to use such data to establish an identification rate. The UBH data, however, contained enough clinical information to allow the identification of those individuals who had received detoxification services, while the Ingenix data did not, in many cases allowing only the identification of the level of care at which a service was provided. As a result, it was not possible to examine the *linkage of detoxification to services*. An obvious implication is that the availability of data in different systems will be an important constraint on the types of quality indicators that can be obtained, and that this is likely to vary systematically by the type of managed care. While this may allow comparison of quality indicators across health plans in which substance abuse treatment services are managed in a similar manner, it is likely to complicate any analysis of quality indicators across different types of health plans. This may be particularly problematic if future research replicates the findings presented here of substantial differences among different types of managed care. One possible solution is an improvement in the quality of data available in administrative data sets, such as might result if accrediting organizations use such data to hold plans accountable. An alternative approach would be the development and implementation of quality indicators that are more amenable to being applied equally across all types of health plans, such as those relying on chart review, may become increasingly important.

Substance abuse treatment quality indicators have the potential of allowing purchasers and consumers to compare the quality of the clinical care available in various health plans in the future. While this information may not be very relevant for the majority of privately insured individuals, for the minority with drug and alcohol problems, it may be very important. Optimally, this would allow these individuals to make informed decisions about their choice of health plans, choosing plans that provide the best quality care for individuals with drug and alcohol disorders. It would also allow accrediting organizations to set minimal standards for adequate substance abuse treatment. In turn, this would potentially provide an incentive for health plans to improve the quality of their drug and alcohol treatment services, and would help to raise the level of care across many plans.

There are, however, two important caveats when considering the use of quality indicators to compare the drug and alcohol treatment among health plans. The first is related to the assumption that quality indicators reflect the performance of the health plan with respect to a condition or set of conditions. This dissertation and work done by others (Garnick et al., 2002) has demonstrated that there is substantial variation among health plans in their performance on proposed quality indicators. Yet this dissertation has also demonstrated, at least with respect to *linkage of detoxification to services*, that individual copayments are likely to have a significant effect on a quality indicator, and may affect a much broader range of substance abuse treatment services. Decisions about coverage and benefit design are not made by the managed care organization, but rather by the employer. As a result, a health plan's performance on quality indicators possibly may be significantly affected by an employer's decision about benefit design, a decision that the health plan may have little to no control over, and as a result may not reflect the quality received by that employee in a company with a different benefit design. In such a case, the use of a quality indicator as a measure of health plan clinical quality would be misleading and would not achieve its intended goals. Such issues should be thought through and addressed as part of the wider efforts to better inform consumers about the quality of care available under their health plan.

The second caveat, and final topic of the dissertation, concerns the system effects of establishing benchmarks and quality indicators for drug and alcohol treatment. As an example, I would like to speculate about potential unintended consequences of efforts to establish quality indicators for substance abuse treatment. One laudable goal of developing and implementing such quality indicators is to establish benchmarks and provide feedback, so that over time, purchasers and individuals migrate to plans with better quality care. There are many other factors that enter into decisions, and many alternative scenarios that are also plausible. For example, most individuals who need drug and alcohol treatment do not believe they have a problem and as a result don't recognize the need for treatment. Their family members may or may not recognize the substance abuse problem. As a result, it is unclear to what extent family members would be influenced in their choice of health plan by information about the cost or quality of substance abuse; individuals in denial of their drug or alcohol problem would be quite unlikely to be influenced by such information in their choice of health plan. In contrast to providing information about the quality of other services available in a health plan, which may influence the decision of some employees, it is unclear what effect, if any, providing information to employees about the quality of substance abuse treatment would have on selection of health plan among employed individuals.

Similar uncertainties arise when considering the possible responses of employers to increased information about the quality of drug and alcohol treatment services available under a health plan. Theoretically, by providing information about the quality of services available in a health plan, employers would be able to select plans with higher quality care for their employees. In turn, health plans might choose to compete on quality, resulting in generally higher quality health care. An alternative, however, is that employers might seek to avoid health plans offering higher quality substance abuse care. This would appear to be most likely to occur in situation in which employers believed that the quality of substance abuse care might affect potential employees choice of which firm to work for. In this situation, an employer might believe that offering a health plan with better substance abuse care than his competitors would make his/her company more attractive to individuals with drug and alcohol problems, and would result in a

workforces with higher rates of drug and alcohol problems. Although the treatment of drug and alcohol problems in these individuals might be better than they would receive in the health plan of a competitor, an employer might reasonably worry about all the other potential costs to his business of employing individuals with drug and alcohol problems, such as absenteeism, underproductivity, workplace injuries, and potential liability issues. An employer who was concerned about these issues might choose health plans with poorer quality drug and alcohol treatment to serve as a disincentive for people with drug and alcohol problems to seek employment with his/her company.

These examples are relatively simplistic, and don't address the many complexities that employers and individuals consider when choosing health plans or considering issues related to drug and alcohol treatment. Yet they provide examples of how decisions regarding the treatment of individuals with drug and alcohol problems remain different in many ways than the treatment of other medical and mental health disorder. Decision-makers and clinicians need information to be able to understand the current delivery system for substance abuse care among privately insured patients. As this information leads to efforts to increase access and improve the quality of drug and alcohol treatment in this country, however, it is likely that progress will need to be slow, systematic and sensitive to unintended consequences to significantly improve the substance abuse care available to privately insured individuals in this country.

Chapter 7

References

- Adams, A., Ockene, J. K., Wheller, E. V., & Hurley, T. G. (1998). Alcohol counseling: physicians will do it. Journal of General Internal Medicine, 13(10), 692-698.
- Adams, W. L., Yuan, Z., Barboriak, J. J., & Rimm, A. A. (1993). Alcohol-related hospitalizations of elderly people. Prevalence and geographic variation in the United States. Jama, 270(10), 1222-1225.
- American Psychiatric Association. (1994). Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Washington, D.C.: American Psychiatric Press, Inc.
- American Society of Addiction Medicine. (1996). Patient placement criteria for the treatment of substance-related disorders (2 ed.). Chevy Chase, MD: American Society of Addiction Medicine.
- American Society of Addiction Medicine. (April 1999). The impact of managed care on addiction treatment.
- Anglin, M. D., & Hser, Y. (1990). Treatment of Drug Abuse. In M. Tonry & J. Q. Wilson (Eds.), Drugs and Crime (pp. 393-458). Chicago, IL: University of Chicago Press.
- Babor, T. F., Stephens, R. S., & Marlatt, G. A. (1987). Verbal report methods in clinical research on alcoholism: response bias and its minimization. J Stud Alcohol, 48(5), 410-424.
- Baird, M. A., Burge, S. K., & Grant, W. D. (1989). A scheme for determining the prevalence of alcoholism in hospitalized patients. Alcohol Clin Exp Res, 13(6), 782-785.
- Barnett, N. P., Spirito, A., Colby, S. M., Vallee, J. A., Woolard, R., Lewander, W., & Monti, P. M. (1998). Detection of alcohol use in adolescent patients in the emergency department. Acad Emerg Med, 5(6), 607-612.
- Booth, B. M., Cook, C. L., Blow, F. C., & Bunn, J. Y. (1992). Utilization of outpatient mental health services after inpatient alcoholism treatment. Journal of Mental Health Administration, 19(1), 21-30.
- Buck, J. A., Teich, J. L., Umland, B., & Stein, M. (1999). Behavioral health benefits in employer-sponsored health plans, 1997. Health Aff (Millwood), 18(2), 67-78.
- Califano, J. A. (1998). Substance abuse and addiction - the need to know. American Journal of Public Health, 88(1), 9-11.
- Callahan, J. J., Shepard, D. S., Beinecke, R. H., Larson, M. J., & Cavanaugh, D. (1995). Mental health/substance abuse treatment in managed care: the Massachusetts Medicaid experience. Health Affairs, 14(3), 173-184.
- Chang, C. F., Kiser, L. J., Bailey, J. E., Martins, M., Gibson, W. C., Schaberg, K. A., Mirvis, D. M., & Applegate, W. B. (1998). Tennessee's failed managed care program for mental health and substance abuse services. Journal of the American Medical Association, 279(11), 864-869.
- Coulehan, J. L., Zettler-Segal, M., Block, M., McClelland, M., & Schulberg, H. C. (1987). Recognition of alcoholism and substance abuse in primary care patients. Arch Intern Med, 147(2), 349-352.

- Edmunds, M., Frank, R., Hogan, M., McCarty, D., Robinson-Beale, R., & Weisner, C. (1997). Managing Managed Care: Quality Improvement in Behavioral Health. Washington, D.C: National Academy Press.
- Epstein, J., & Gfoerer, J. (1998). Changes affecting NHSDA estimates of treatment need for 1993-1996. Washington DC: Office of Applied Studies, Substance Abuse and Mental Health Services Administration.
- Fleming, M. F., & Barry, K. L. (1991). A three-sample test of a masked alcohol screening questionnaire. Alcohol Alcohol, 26(1), 81-91.
- Gale, T. C., White, J. A., & Welty, T. K. (1998). Differences in detection of alcohol use in a prenatal population (on a Northern Plains Indian Reservation) using various methods of ascertainment. S D J Med, 51(7), 235-240.
- Garnick, Lee, M. T., Chalk, M., Gastfriend, D., Horgan, C. M., McCorry, F., McLellan, A. T., & Merrick, E. L. (2002). Establishing the feasibility of performance measures for alcohol and other drugs. Schneider Institute for Health Policy, Heller School for Social Policy and Management, Brandeis University: Working Paper.
- Garnick, D. W., Hodgkin, D., & Horgan, C. M. (2002). Selecting data sources for substance abuse services research. J Subst Abuse Treat, 22(1), 11-22.
- Garnick, D. W., Horgan, C. M., Hodgkin, D., Merrick, E. L., Goldin, D., Ritter, G., & Skwara, K. C. (2001). Risk transfer and accountability in managed care organizations' carve-out contracts. Psychiatr Serv, 52(11), 1502-1509.
- Gerstein, D. R., & Harwood, H. J. (1990). Treating drug problems: A study of the evolution, effectiveness, and financing of public and private drug treatment systems (Vol. 1). Washington, DC: National Academy Press.
- Gerstein, D. R., Johnson, R. A., Harwood, H. J., Fountain, D., Suter, N., & Malloy, K. (1994). Evaluating recovery services: The California drug and alcohol treatment assessment (CALDATA) general report (ADP 94-629). Sacramento, CA: Department of Alcohol and Drug Programs.
- Goldman, W., McCulloch, J., & Sturm, R. (1998). Costs and utilization of mental health services before and after managed care. Health Affairs, 17(2), 40-52.
- Gresenz, C. R., Liu, X., & Sturm, R. (1998). Managed behavioral health services for children under carve-out contracts. Psychiatric Services, 49(8), 1054-1058.
- Hankin, J. R., Steinwachs, D. M., & Elkes, C. (1980). The impact on utilization of a copayment increase for ambulatory psychiatric care. Med Care, 18(8), 807-815.
- Harwood, H., Fountain, D., & Livermore, G. (1998). The economic costs of alcohol and drug abuse in the United States, 1992 (NIH publication 98-4327): National Institute on Drug Abuse.
- Hodgkin, D. (in press). Cost sharing for substance abuse and mental health in managed care plans. Medical Care Research and Review.
- Hodgkin, D., Horgan, C. M., & Garnick, D. W. (1997). Make or buy: HMOs' contracting arrangements for mental health care. Adm Policy Ment Health, 24(4), 359-376.
- Hoffman, N. G., & Miller, N. S. (1992). Treatment outcomes for abstinence-based programs. Psychiatric Annals, 22(8), 402-408.
- Holder, H. D., & Blose, J. O. (1986). Alcoholism treatment and total health care utilization and costs. A four-year longitudinal analysis of federal employees. Jama, 256(11), 1456-1460.

Holder, H. D., & Blose, J. O. (1992). The reduction of health care costs associated with alcoholism treatment: a 14-year longitudinal study. Journal of Studies on Alcohol, 53(4), 293-302.

Horgan, C. M., & Merrick, E. L. (2001). Financing of substance abuse treatment services. Recent Dev Alcohol, 15, 229-252.

Hu, T., Hunkeler, E. M., Weisner, C., Li, E., Grayson, D. K., Westphal, J., & McLellan, A. T. (1997). Treatment participation and outcome among problem drinkers in a managed care alcohol outpatient treatment program. Journal of Mental Health Administration, 24(1), 23-34.

Hubbard, R. L., Craddock, S. G., Flynn, P. M., Anderson, J., & Etheridge, R. M. (1997). Overview of 1-year follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). Psychology of Addictive Behaviors, 11(4), 261-278.

Hubbard, R. L., Marsden, M. E., Rachal, J. V., Harwood, H. J., Cavanaugh, E. R., & Ginzburg, H. M. (1989). Drug Abuse Treatment: A national study of effectiveness. Chapel Hill, NC: University of North Carolina Press.

Iglehart, J. K. (1996). Managed care and mental health. N Engl J Med, 334(2), 131-135.

Institute of Medicine. (1990a). Broadening the base of treatment for alcohol problems. Washington, DC: National Academy of Sciences.

Institute of Medicine. (1990b). Treating Drug Problems, Volume 1. A Study of the Evolution, Effectiveness, and Financing of Public and Private Drug Treatment Systems. Washington, DC: National Academy of Sciences.

Jackson, C. (2000, December 25 2000). AMA wants insurers to end mental health carve-outs. AMNews.

Jensen, G. A., Morrissey, M. A., Gaffney, S., & Liston, D. K. (1997). The new dominance of managed care: insurance trends in the 1990s. Health Affairs, 16(1), 125-136.

Johnson, R. A., & Gerstein, D. R. (2000). Treatment populations, services, and outcomes for cocaine and crack-cocaine dependence. Journal of Psychopathology and Behavioral Assessment, 22(4), 339-351.

Keeler, E. B., Manning, W. G., & Wells, K. B. (1988). The demand for episodes of mental health services. Journal of Health Economics, 7(4), 369-392.

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., Wittchen, H. U., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. Archives of General Psychiatry, 51(1), 8-19.

Kirk, S. A., & Masi, J. (1978). Aftercare for alcoholics: services of community mental health centers. Journal of Studies on Alcohol, 39(3), 545-547.

Kirkpatrick, B., Johnson, M. S., Earp, J. A., & Fletcher, R. H. (1988). Accuracy of chart diagnoses of alcoholism in patients with a history of psychosis. Psychiatr Med, 6(1), 65-71.

Lawental, E., McLellan, A. T., Grissom, G. R., Brill, P., & O'Brien, C. (1996). Coerced treatment for substance abuse problems detected through workplace urine surveillance: is it effective? Journal of Substance Abuse, 8(1), 115-128.

Liang, K., & Zeger, S. (1986). Longitudinal data analysis using generalized linear models. Biometrika, 73, 13-22.

Long, C. G., Williams, M., & Hollin, C. R. (1998). Treating alcohol problems: A study of programme effectiveness and cost effectiveness according to length and delivery of treatment. Addiction, 93(4), 561-571.

Ma, C. A., & McGuire, T. G. (1998). Costs and incentives in a behavioral health carve-out. Health Affairs, 17(2), 53-69.

Manning, W. G., Jr., Wells, K. B., Duan, N., Newhouse, J. P., & Ware, J. E., Jr. (1986). How cost sharing affects the use of ambulatory mental health services. Jama, 256(14), 1930-1934.

McCorry, F., Garnick, D. W., Bartlett, J., Cotter, F., & Chalk, M. (2000). Developing performance measures for alcohol and other drug services in managed care plans. It Comm J Qual Improv, 26(11), 633-643.

McCrary, B. S., Richter, S. S., Morgan, T. J., Slade, J., & Pfeifer, C. (1996). Involving health care workers in screening for alcohol problems. Journal of Addictive Disease, 15(3), 45-58.

McGuire, T. G., & Shatkin, B. F. (1991). Forecasting the cost of drug abuse treatment coverage in private health insurance. NIDA Research Monograph, 113, 175-189.

McLellan, A. T., Lewis, D. C., O'Brien, C. P., & Kleber, H. D. (2000). Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. JAMA, 284(13), 1689-1695.

McLellan, A. T., Meyers, K., Belding, M., Levine, M., Gould, F., & Bencivengo, M. (1998). Effects of managed care on outcomes of publicly treated substance abuse patients. Paper presented at the Abstract Book/Association for Health Services Research.

MEDSTAT Group. (2001). Medicare, medicaid, and managed care analysis project: Round Two Analytic Tables. Rockville MD: Center for Mental Health Services, Substance Abuse Mental Health Services Administration.

Merrick, E. L., Garnick, D. W., Horgan, C. M., Goldin, D., Hodgkin, D., & Sciegaj, M. (1999). Use of performance standards in behavioral health carve-out contracts among Fortune 500 firms. Am J Manag Care, 5 Spec No, SP81-90.

Moore, R. D., & Malitz, F. E. (1986). Underdiagnosis of alcoholism by residents in an ambulatory medical practice. J Med Educ, 61(1), 46-52.

Morrissey, M. A., & Jensen, G. A. (1988). Employer-sponsored insurance coverage for alcoholism and drug-abuse treatments. J Stud Alcohol, 49(5), 456-461.

NCQA. (1998). The state of managed care quality: NCQA.

Newhouse, J. P. (1993). Free for all? Lessons from the RAND Health Insurance Experiment. Cambridge MA: Harvard University Press.

Office of National Drug Control Policy. (1999a). The drug problem. ONDCP. Retrieved, from the World Wide Web: <http://www.whitehousedrugpolicy.gov/drugfact/drugprob.html>

Office of National Drug Control Policy. (1999b). National Drug Control Strategy, 1999 (NCJ 176986). Washington, DC: National Institute of Justice.

Office of National Drug Control Policy. (2001). The economic costs of drug abuse in the United States, 1992-1998 (NCJ-190636). Washington, DC: Executive Office of the President.

Oss, M. E., & Clary, J. H. (1999). Managed Behavioral Health Marketshare in the United States, 1998-1999. Gettysburg, PA:: Open Minds.

Rogowski, J. A. (1992). Insurance coverage for drug abuse. Health Affairs, 11(3), 137-148.

Schildhaus, S., Gerstein, D., Brittingham, A., Cerbone, F., & Dugoni, B. (2000). Services research outcomes study: overview of drug treatment population and outcomes. Subst Use Misuse, 35(12-14), 1849-1877.

Schluchter, M. (1988). Analysis of incomplete multivariate data using linear models with structured covariance matrices. Statistics in Medicine, 7(317).

Schoenbaum, M., Zhang, W., & Sturm, R. (1998). Costs and utilization of substance abuse care in a privately insured population under managed care. Psychiatric Services, 49(12), 1573-1578.

Scott, J. E., Greenberg, D., & Pizarro, J. (1992). A survey of state insurance mandates covering alcohol and other drug treatment. J Ment Health Adm, 19(1), 96-118.

Simon, G. E., Grothaus, L., Durham, M. L., VonKorff, M., & Pabiniak, C. (1996). Impact of visit copayments on outpatient mental health utilization by members of a health maintenance organization. Am J Psychiatry, 153(3), 331-338.

Simon, G. E., VonKorff, M., & Durham, M. L. (1994). Predictors of outpatient mental health utilization by primary care patients in a health maintenance organization. Am J Psychiatry, 151(6), 908-913.

Simpson, D. D., Joe, G. W., & Broome, K. M. (2002). A national 5-year follow-up of treatment outcomes for cocaine dependence. Arch Gen Psychiatry, 59(6), 538-544.

Solano, P. L. (1997). Financing of drug treatment services. NIDA Resource Center for Health Services Research. Retrieved December 4, 2000, from the World Wide Web:

Stata Corporation. (1997). Stata Statistical Software: Release 5.0 (5.0 ed.). College Station, TX: Stata Corporation.

Steenrod, S., Brisson, A., McCarty, D., & Hodgkin, D. (2001). Effects of managed care on programs and practices for the treatment of alcohol and drug dependence. Recent Dev Alcohol, 15, 51-71.

Stein, B., Orlando, M., & Sturm, R. (2000). The Effect of Copayments on Drug and Alcohol Treatment Following Inpatient Detoxification Under Managed Care. Psychiatric Services, 51, 195-198.

Stein, B. D., Reardon, E., & Sturm, R. (1999). Substance abuse service utilization under managed care: HMOs versus carve-out plans. Journal of Behavioral Health Services & Research, 26(4), 451-456.

Sturm, R. (1997). How expensive is unlimited mental health care coverage under managed care? Journal of the American Medical Association, 278(18), 1533-1537.

Sturm, R. (1999). Tracking changes in behavioral health services: how have carve-outs changed care? J Behav Health Serv Res, 26(4), 360-371.

Sturm, R. (2000). Managed care risk contracts and substance abuse treatment. Inquiry, 37(2), 219-225.

Sturm, R., Jackson, C. A., Meredith, L. S., Yip, W., Manning, W. G., Rogers, W. H., & Wells, K. B. (1995). Mental health care utilization in prepaid and fee-for-service plans among depressed patients in the Medical Outcomes Study. Health Services Research, 30(2), 319-340.

- Sturm, R., & Klap, R. (1999). Use of psychiatrists, psychologists, and master's-level therapists in managed behavioral health care carve-out plans. Psychiatr Serv, 50(4), 504-508.
- Sturm, R., & McCulloch, J. (1998). Mental health and substance abuse benefits in carve-out plans and the Mental Health Parity Act of 1996. Journal of Health Care Finance, 24(3), 82-92.
- Sturm, R., Zhang, W., & Schoenbaum, M. (1999). How expensive are unlimited substance abuse benefits under managed care? J Behav Health Serv Res, 26(2), 203-210.
- Substance Abuse and Mental Health Services Administration. (1998). Preliminary results from the 1997 National Household Survey on Drug Abuse. Washington DC: Office of Applied Studies, Department of Health and Human Services.
- Substance Abuse and Mental Health Services Administration. (2001). Summary of Findings from the 2000 National Household Survey on Drug Abuse (SMA 01-3549). Rockville, MD: Office of Applied Studies, NHSDA.
- Substance Abuse Mental Health Services Administration. (various dates). Managed care tracking system. Rockville MD: Office of Applied Studies, Department of Health and Human Services.
- Sullivan, J. T., Sykora, K., Schneiderman, J., Naranjo, C. A., & et al. (1989). Assessment of alcohol withdrawal: The revised Clinical Institute Withdrawal Assessment for Alcohol scale (CIWA-Ar). British Journal of Addiction, 84(11), 1353-1357.
- Svikis, D. S., Zarin, D. A., Tanielian, T., & Pincus, H. A. (2000). Alcohol abuse and dependence in a national sample of psychiatric patients. J Stud Alcohol, 61(3), 427-430.
- U.S. Department of Labor Bureau of Labor Statistics. (1998). Employee Benefits in Medium and Large Private Establishments, 1995 (Bulletin 2496). Washington DC.
- U.S. Department of Labor Bureau of Labor Statistics. (2002). National Compensation Survey: Employee Benefits in Private Industry in the United States, 2000. Retrieved November 11, 2002, from the World Wide Web:
- United States House of Representatives. H.R. 1777, Harold Hughes, Bill Emerson Substance Abuse Treatment Parity Act.
- United States Senate. S.1447, Drug and Alcohol Addiction Recovery Act of 1999.
- Wallace, P., & Haines, A. (1985). Use of a questionnaire in general practice to increase the recognition of patients with excessive alcohol consumption. Br Med J (Clin Res Ed), 290(6486), 1949-1953.
- Wallen, J., Roddy, P., & Meyers, S. M. (1986). Male-female differences in mental health visits under cost-sharing. Health Serv Res, 21(2 Pt 2), 341-350.
- Wells, K. B. (1995). Cost containment and mental health outcomes: experiences from US studies. British Journal of Psychiatry Supplement, 27, 43-51.
- Wells, K. B., Sturm, R., Sherbourne, C. D., & Meredith, L. S. (1996). Caring for Depression. Cambridge, Mass.: Harvard University Press.
- Wesson, D. R. (1995). Detoxification from alcohol and other drugs. Rockville MD: SAMSHA.
- Williams, W. G. (1981). Nature and scope of benefit packages in health insurance coverage for alcoholism treatment. Alcohol Health Res World, 5(4), 5-11.

Woodward, A., Epstein, J., Gfroerer, J., Melnick, D., Thoreson, R., & Willson, D. (1997). The drug abuse treatment gap: recent estimates. Health Care Financ Rev, 18(3), 5-17.