Journal of Substance Abuse Treatment, Vol. 16, No. 1, pp. 39–45, 1999

0740-5472/99 $–see front matter

PII S0740-5472(98)00006-3

ARTICLE

Comparison of Pregnancy-Specific Interventions to a Traditional Treatment Program for Cocaine-Addicted Pregnant Women

THEA WEISDORF, MD,* THEODORE V. PARRAN, JR., MD,† ANTONNETTE GRAHAM, PHD,‡ AND CLINT SNYDER, PHD‡

*Department of Family and Community Medicine, University of Toronto, Toronto, Ontario, Canada
†Department of Medicine, Case Western Reserve University, Clevelend, OH, USA
‡Department of Family Medicine, Case Western Reserve University, Cleveland, OH, USA

Abstract–*Alcohol and drug use in pregnancy is a significant concern. There is a paucity of treatment programs for substance-abusing pregnant women, especially if indigent. Futhermore, treatment retention is compromised when the drug of choice is crack-cocaine. This paper reports the results of a study comparing treatment retention of cocaine-abusing indigent pregnant women before and after incorporating pregnancy-specific interventions. Audits were performed on 603 charts of women enrolled between 1988 and 1994 in either a traditional treatment program (*n *= 114) or in the Pregnancy Substance Abuse Program (PSAP) (*n *= 489). Differences in treatment retention were found between the two treatment groups. Drop-out rates from the inpatient component of treatment were significantly lower in the PSAP group than in the control group (11.3% vs. 38.6%,* $p < .001$*). There was a higher rate of completion of outpatient treatment in the PSAP compared to the control group (34.4% vs. 13.5%,* $p < .005$*). These results were achieved with a 2-day decreased inpatient stay. Treatment retention improved when specialized interventions were provided, at minimal additional cost. These results have implications for other publicly funded treatment programs.* © *1998 Elsevier Science Inc.*

Keywords–pregnancy; cocaine; indigent; treatment; intervention.

INTRODUCTION

SUBSTANCE ABUSE CONTRIBUTES to more illnesses, disabilities, and deaths than any other preventable health disorder (Institute for Health Policy, Brandeis University, 1993). In 1988, 15.3 million people in the United States met the criteria for alcohol abuse, dependence, or both (U.S. Department of Health and Human Services, 1993). The 1988 National Household Survey on Drug Abuse indicates that over 5 million women in their childbearing years (ages 15–44) are current users of illicit drugs (U.S. Department of Health and Human Services, 1991a). A study by Chasnoff of 36 urban hospitals indicated that illicit drug use during pregnancy varied between 0.4 and 27% of mothers by geographic location (U.S. Department of Health and Human Services, 1991b). Specifically, data from the National Institute on Drug Abuse 1990 Household Survey (U.S. Department of Health and Human Services, 1991a) estimated that 4.5% of pregnant women between the ages of 12 and 34 years used cocaine during pregnancy (Gomby & Shiono, 1991).

Dr. Weisdorf was a fellow in the Department of Family Medicine at Case Western Reserve University when this study was completed.

Requests for reprints should be addressed to Thea Weisdorf, MD, University of Toronto, Wellesley Health Centre, 410 Sherbourne Street, Toronto, Ontario, M4X 1K2, Canada. E-mail: atkan@netcom.ca

Received July 7, 1997; Revised November 4, 1997; Accepted December 23, 1997.

The current cocaine epidemic has served to increase professional and public recognition of pregnancy-associated substance abuse. Women, in general, underutilize the chemical dependency treatment system (Furst, Beckman, Nakamura, & Weiss, 1981). Many of the treatment programs created during the 1970's and early 1980's were still using male-based recovery models that focused treatment upon an "individual" medical or disease model, often to the exclusion of other family members (Furst et al., 1981; Beck & Kocal, 1982; Brotman, Hutson, & Suffet, 1985; Feig, 1990). Pregnant women often have other children (Finkelstein, 1990; Finnegan, 1991) and fundamental barriers in accessing treatment include the lack of resources specifically designed for pregnant women and their newborn infants, and their exclusion from many existing treatment programs (Liang, 1991). A 1989 New York City survey of treatment programs revealed that in the minority of programs that would accept pregnant women, 67% would not accept Medicaid as payment and only 13% would accept pregnant Medicaid patients who were addicted to cocaine (Chavkin, 1990). In addition, concerns around medical issues including detoxification protocols for both mother and infant, and fear of program liability for negative birth outcomes further limit treatment resources for pregnant women (Finkelstein, 1993; Brazaitis, 1993). Not unlike other urban areas, Cleveland had a documented need for comprehensive alcohol and drug prevention and treatment services for individuals and their families.

There has been little empirical evidence about the efficacy of traditional chemical dependence programming for women. There is even less research on the efficacy of traditional chemical dependence treatment for low socioeconomic level women, especially those who are pregnant and cocaine dependent. No studies were found in the literature comparing the treatment retention in a traditional 12-step program with a program designed for pregnant or parenting women.

Based on the increasing problem of substance abuse among pregnant women and the paucity of treatment programs, this current cohort-controlled study was undertaken. This study was designed to evaluate treatment retention of indigent pregnant women addicted to cocaine in a publicly funded treatment program. It compares the women's retention in a traditional, non–gender-specific 12-step–oriented treatment program (control group) with retention when the program was modified to incorporate gender-specific and pregnancy-specific needs (study group). This paper describes the outcomes of the two groups.

THE TRADITIONAL SUBSTANCE ABUSE PROGRAM

This study was done in a chemical dependence treatment program of an urban, tertiary care hospital (Rosary Hall, Saint Vincent Charity Hospital, Cleveland, Ohio), which has provided chemical dependence treatment for almost 40 years. In 1988, responding to a gradually increasing public awareness of a need for rehabilitation services for pregnant women, the treatment facility began admitting pregnant, substance-abusing women into a program that served adult males and females. The women in the initial phase were therefore mainstreamed into a traditional, publicly funded inpatient and outpatient treatment program (control group).

The traditional program included detoxification and assessment and inpatient rehabilitation over a 12- to 14-day period, and an intensive outpatient program for 3 hours a day, 5 days a week, for 4 weeks. The philosophy was abstinence-based, 12-step–oriented, and minimally confrontational. Patients were triaged to the different stages of treatment based on the American Society of Addiction Medicine's assessment and criteria. The traditional treatment program included lectures, videos, discussions, readings, meditation, Alcoholics Anonymous (AA), Narcotics Anonymous (NA), Cocaine Anonymous (CA) meetings and family education/therapy. The inpatient group therapy sessions were gender-specific, and the outpatient group therapy sessions were gender-mixed. Furthermore, there was no pregnancy- or parenting-specific programming and, finally, there was neither continuity of group membership nor of counseling staff between the inpatient assessment and outpatient phases of treatment.

THE PREGNANCY SUBSTANCE ABUSE PROGRAM (PSAP)

Specific requirements and criteria were established for the PSAP group to improve treatment retention and outcomes. All patients were required to be receiving obstetric care, to have had a medical exam within 1 month prior to entering the program, and to have a completed referral form from their obstetrician. This process ensured that the patient was medically stable for detoxification and was receiving appropriate medical care. Since no obstetric services were available at the hospital where the treatment program was based, this referral guaranteed that labor and delivery services would be provided.

All admissions to the PSAP program were prescheduled through the Rosary Hall intake office, with an average waiting time for admission of 48 to 72 hours. During the first 24 hours after admission, patients received a history and physical exam and a comprehensive chemical dependence assessment, performed by the PSAP counselor. By the second hospital day, patients were officially transferred from detoxification to residential rehabilitation and gradually integrated into the full counseling program over a 2-day period.

PSAP Program Requirements

Women were required to attend the PSAP primary treatment program Monday through Friday, for a total of 24

hours. The duration of PSAP primary treatment was 20 sessions for those women who were admitted as outpatients only, and 15 outpatient sessions for those women who required some residential treatment. Unique to PSAP treatment were parenting classes, pregnancy and nutrition classes, and videos on pregnancy and substance abuse. These activities were separate from, but in addition to, the regular program. As with the traditional program, all PSAP participants were required to attend four to five AA or NA meeting per week. Random drug testing was performed on average once per week during outpatient treatment and once every 3 weeks in aftercare. Women were allowed passes and transportation to and from obstetric appointments during the residential and outpatient phases of treatment.

Aftercare included 12 weeks of group counseling sessions and parenting classes. Child care was provided throughout the PSAP program, either through an arrangement with a crisis center or on-site, staffed by recovering volunteers. For the duration of the PSAP treatment continuum, all efforts were made to maintain consistency of the counseling staff and of group membership.

METHODS

The two approaches to the treatment of chemically dependent pregnant women were compared. The first approach, the control group, occurred between 1988 and 1990, and involved the traditional treatment program. The second approach, 1990 through 1994, incorporated the PSAP specialized services for pregnant women.

A standardized form for retrieving pertinent information was prepared for the study. The woman's entire hospital chart, including the chemical dependence assessment, was reviewed. Two master's of science nursing school students performed chart audits on the control group. The PSAP charts were audited by a premed college student. To enhance reliability, one of the investigators (T.P.) reviewed 10% of charts in both sample populations.

Chart audits were performed on all 603 pregnant women admitted to the treatment facility during the entire study period: 114 admissions from the control group and 489 from the PSAP group. Of the total PSAP admissions (n = 489), 386 women were admitted once. The other PSAP admissions (n = 103) represented 84 women who had two or more admissions during the study period. These "repeat" admissions were excluded from the data analysis. None of the women in the original group (n = 114) had more than one admission during the study period to this treatment facility.

DATA ANALYSIS

Data analysis comparing the traditional (control) and cohort (PSAP) samples used comparison of proportions tests, or difference of means testing, depending on the level of measurement.

RESULTS

The demographic characteristics of the two groups (n = 500) are described in Table 1. In the control group (n = 114), 96% were African American (n = 109), 4% (n = 5) White, and in the PSAP group (n = 386), 91% (n = 351) versus 8% (n = 34), respectively. The women were an average age of 26.3 in the control group and 27.3 years in PSAP groups ($p < .10$). In both groups, the overwhelming majority of women were single (75% in the control versus 72% in the PSAP groups). Women in the control group had an average of 2.2 children as compared to 2.9 children in the PSAP group ($p < .001$). In the control group, 27% of the women presented for treatment in the first trimester, 44% in the middle trimester, and 25% in the third trimester. This was quite different from the PSAP group in which 11% presented in the first trimester, 40% in the second and 48% in the third ($p < .001$).

It should be noted that 29% (n = 111) of the women in the PSAP group were postpartum at the time of admission to the program. A subgroup analysis of the postpartum women was undertaken to determine their treatment retention as compared to the pregnant PSAP patients and it was found that there were no statistically significant differences between the two PSAP groups. Over 98% of both the control and PSAP goups of women documented Medicaid, Cuyahoga County welfare, or nothing as their type of health insurance. In both study groups, the primary drug of choice was cocaine (>95% and >87%, control versus PSAP, respectively) and the average duration of use was between 3 and 4 years in both groups.

Table 2 summarizes the inpatient retention experience of both groups of pregnant patients. Of all women entering residential treatment, 61.4% of women in the control group and 88.7% of women in the PSAP group successfully completed this level of care ($p < .001$). The average length of stay in the inpatient setting for the control group was 9.5 days, compared to 7.9 days for the PSAP group.

Table 3 illustrates the treatment retention of those women initially referred to outpatient treatment. These results show that 45.9% (17 of 37) of the control group versus 83.3% (264 of 317) of the PSAP group actually started outpatient treatment ($p < .001$). Of those initially referred, 13.5% (5 of 37) of the control group, as compared with 34.4% (109 of 317) of the PSAP group, successfully completed the outpatient phase of treatment ($p < .005$). Of those women attending outpatient treatment in the PSAP group, the average number of days they attended was 10.1. Similar data were not available from the control group.

There were 10.5% (12 of 114) of the control group and 25.6% (99 of 386) of the PSAP group who were referred to aftercare ($p < .005$). Data on initiation of after-

TABLE 1
Personal Demographic Characteristics of the Study Groups

	Control (n = 114)		PSAP (n = 386)		
	n	%	n	%	p Value
Age (years)					
M	26.3		27.3		$p < .10$
SD	5.1		4.9		
Marital status					
Single	75	65.8	278	72	
Married	7	6.1	22	5.7	NS
Divorced/separated	12	10.6	53	13.7	
Common law	20	17.5	30	7.8	
Number of children					
None	15	13.2	41	10.7	
1–3	83	72.8	225	58.6	
4–7	16	14.0	105	27.3	
>7 and unknown	0	0.0	9	2.4	
M	2.2		2.9		$p < .001$
SD	1.4		2.0		
Gestational age[a] (number of weeks)					
0–12	31	27.2	29	10.5	
13–25	50	43.9	109	39.6	
26–40	29	25.4	131	47.6	
Unknown	4	3.5	6	2.2	
M	19		24.4		$p < .001$
SD	10.0		9.2		

PSAP = Pregnancy substance abuse program; NS = not significant.
[a]There were 111 postpartum women in the PSAP group who were omitted from this statistic.

care were available only for the PSAP group, and of those, 78.8% (78 of 99) attended at least one meeting. Further data on aftercare retention were not available for either group.

There were 84 women in the PSAP group who had more than one admission to the program during the study period representing a total of 103 repeat admissions. Sixteen women had three admissions and three women had four admissions during this study period. A subgroup analysis of these women showed that there were no significant differences in treatment retention for inpatient (Table 4) or outpatient treatment (Table 5) between the women with repeat admissions and those with single admissions. None of the 114 women in the control group had repeat admissions.

DISCUSSION

Until recently, the magnitude of substance abuse problems in women in general, and pregnant women in par-

TABLE 2
Treatment Retention of Women Treated in the Inpatient Setting

	Control (n = 114)		PSAP (n = 346)[a]		
	n	%	n	%	p Value
Referred to inpatient	114	100	346	100	
Mean number of days	9.5		7.6		
Discharge type after inpatient phase					
Regular[b]	70	61.4	307	88.7	$p < .001$
Irregular[c]	44	38.6	39	11.3	

PSAP = Pregnancy substance abuse program.
[a]n = 346 because 40 of the PSAP women entered the program directly into outpatient treatment.
[b]Regular discharge indicates full completion of this treatment phase.
[c]Irregular discharge indicates failure to complete this treatment phase.

TABLE 3
Treatment Retention for Women Referred to Outpatient Setting

	Control (n = 37)		PSAP (n = 317)		
	n	%	n	%	*p* Value
Failed to start outpatient	20	54.1	53	16.7	$p < .001$
Discharge type after outpatient					
Regular	5	13.5	109	34.4	$p < .005$
Irregular	12	32.4	155	48.9	

PSAP = Pregnancy substance abuse program.

ticular, has been largely unrecognized. The number of women identified who abuse alcohol and other drugs continues to increase, but the amount of funding for treatment remains limited, especially for indigent women. This situation demands treatment approaches that integrate practicality, ingenuity, and cost efficiency, with comprehensive gender- and pregnancy-specific methods. There are few programs that meet these treatment requirements. Providing effective in- and outpatient publicly funded chemical dependency treatment for the large numbers of substance-abusing pregnant women is a tremendous public health challenge.

This study was developed to determine whether the introduction of several interventions aimed specifically at special needs and barriers of pregnant and parenting substance-abusing women could result in improved treatment retention. The special programming needed to be incorporated into a publicly funded treatment cost structure without requiring additional resources. Studies indicate that indigent, pregnant substance-abusing women are historically difficult to engage in and maintain in treatment, but that overall outcomes are improved with longer treatment retention (Stevens & Arbiter, 1995; Wexler, Falkin, & Lipton, 1990; DeLeon, 1988; Simpson & Sells, 1988).

Treatment retention was statistically and clinically improved at all levels of care by the PSAP treatment interventions, including retention in residential treatment, initial attendance at outpatient treatment, completion of outpatient treatment, and initiation of aftercare. These data suggest that some components of the PSAP intervention incorporated at the earliest stages of treatment engaged women and motivated them to stay in treatment. The improved retention may be related to the women, who often feel ashamed and morally deficient because of their drug use (Tracy & Williams, 1991), sensing that they were in a consistent, caring environment, with their basic needs addressed. The PSAP treatment program supported participants by ensuring interaction with other pregnant, addicted women. The immediate assignment of a PSAP counselor to perform the chemical dependence assessment and facilitate intergration into inpatient, outpatient, and aftercare phases of treatment was another key factor in improving treatment retention. Finally, and undoubtedly of great importance, was the provision of

TABLE 4
Inpatient Treatment Retention Between PSAP Women With Single Versus Multiple Admissions

	Single Admission (n = 346)[a]		Multiple Admission (n = 86)[a]		
	n	%	*n*	%	*p* Value
Referred to inpatient	346	100	86	100	
Mean number of days in inpatient	7.6		6.5		
Discharge type after inpatient					
WSA	307	88.7	67	81.6	NS
AMA/Therapeutic	39	11.3	19	18.4	

PSAP = Pregnancy Substance Abuse Program; NS = not significant; WSA = With Staff Approval; AMA = Against Medical Advice.
[a]n = 346 and n = 86 because 40 of the 386 PSAP single admissions and 17 of the 103 PSAP multiple admissions, respectively, did not participate in inpatient treatment.

TABLE 5
Treatment Retention for PSAP Women Referred to Outpatient Between Women With Single Versus Multiple Admissions

	Single Admission (n = 317)		Multiple Admission (n = 64)		
	n	%	n	%	p Value
Failed to start outpatient treatment	53	16.7	9	14.1	NS
Discharge type after outpatient treatment					
WSA	109	34.4	22	34.3	NS
AMA/Therapeutic	155	48.9	33	51.6	

PSAP = Pregnancy Substance Abuse Program; NS = not significant; WSA = With Staff Approval; AMA = Against Medical Advice.

child care services for women in treatment. Without having to worry about their children's safety, the women could better engage in their treatment. These PSAP innovations were in direct contrast to the experience of women in the control group, who often spent several inpatient days during detoxification before being integrated into the main part of treatment, had different staff coordinating care, did not have interaction with other pregnant women, and had no provision for child care.

At the final level of treatment, aftercare, data are only available for the PSAP group. It is quite likely that the numbers would have been too small from the control group to statistically assess, even if the data on aftercare attendance were available. Nevertheless, it is encouraging to note that almost 80% of those women referred to aftercare actually attended at least one meeting. Obviously, women who attended only one aftercare session and were then lost to follow-up did not have the same success as the women who attended more sessions, but successfully negotiating the initial transition to this last level of care is an important outcome measure for patient prognosis.

Our PSAP data provided for subgroup analysis of postpartum patients and repeat-admission patients. Women in the PSAP group who were pregnant did not differ significantly in any measure of treatment retention from women who were postpartum. This would support the notion that the treatment interventions, such as parenting skills, gender-specific group therapy, and child-care services were equally important to, and effective for, both groups. The 84 PSAP women who had "repeat" admissions during the study period, were neither more nor less successful in their treatment outcomes on subsequent admissions.

The women in our two cohorts had similar demographic characteristics including age, marital status, and drug of choice. Socioeconomic status was indirectly measured by insurance coverage and indicated that both groups were truly indigent with few financial resources.

One significant difference between our control and PSAP cohorts was that there were more women in the PSAP group who were admitted later in pregnancy. Several reasons may account for this; (a) when accepted by treatment programs, the treatment providers were unprepared for urgent obstetrical needs. Therefore, providers felt uncomfortable admitting women to treatment in the later stages of pregnancy; (b) by the time that PSAP was established, there were stronger connections with the hospitals serving the indigent pregnant women population and, hence, greater ability to serve women through labor and delivery; (c) as the issue of substance abuse and pregnant women became more widely recognized in the community, women likely felt safer in seeking treatment, even at later stages in pregnancy, without the fear of retribution or having their children taken away from them; and (d) the improvement in the recognition by healthcare providers of pregnant, addicted women likely significantly improved later-stage referral. Interestingly, it is thought by some that presenting for prenatal care "later" in pregnancy is an indicator of more severe disease and less engagement with social services in general. If that were the situation, then the improved outcomes demonstrated by the PSAP program would not be realized.

Given the political and financial climate facing publicly funded treatment programs, it is extremely important to note that the improved outcomes were achieved at no additional cost. In fact, there was a savings of almost 2 days of inpatient costs by the PSAP patients, representing resources that could be reallocated to pregnancy-specific issues, such as child care and transportation, further improving treatment retention. The PSAP program demonstrated increased treatment retention using a model of brief inpatient or residential stabilization and treatment followed by a "seamless" transition to outpatient care. This was in direct contrast to a more traditional approach, which emphasized inpatient treatment and included a poorly coordinated, discontinuous outpatient phase. As such, our findings provide support for the ongoing discussion of the benefits of integrating brief residential treatment with high quality intensive outpatient treatment, as compared to inpatient or outpatient treatment alone in the treatment of patients with severe chemical dependence problems.

There are several limitations to this study. This was a retrospective cohort control study, not a prospective, randomized trial. As such, it was subject to the inherent limitations of a cohort control design. Although our demographic data indicated that our control and PSAP groups were quite similar, minor group differences and time differences between the two study phases do remain. Secondly, the study took place in a single treatment program, in one urban area. This might limit the generalizability of our data to some degree. In addition, the number of women in our control group was small, especially the number who entered ouptatient treatment and more so, those

who completed outpatient treatment. This may have introduced some bias into our control group sample. Finally, this study is a treatment retention study, and not one that directly measured morbidity, mortality, or sobriety outcomes. Although we can infer clinical improvements based upon increased treatment retention, we were not able to directly gather this type of treatment outcome data.

CONCLUSIONS

In conclusion, this study demonstrated statistically and clinically significant improvements in treatment retention of indigent cocaine-dependent pregnant women after implementation of a PSAP program. Utilizing a cohort-controlled, retrospective chart review design, improvements were documented in inpatient, outpatient, and aftercare levels of treatment. The PSAP treatment innovations that accompanied this improved outcome were increased counselor continuity, treatment coordination and group continuity across levels of care, pregnancy and women-specific treatment groups, parenting groups, development of child-care options, and increased emphasis on outpatient treatment. All of this was able to be accomplished within the budget constraints of a publicly funded, brief residential followed by an intensive outpatient, chemical dependence treatment program. There are wide-ranging implications from this study for treatment providers, treatment policy makers and service planners, and researchers interested in studying the treatment needs of cocaine-dependent pregnant women.

REFERENCES

Beck, L.J., & Kocal, K.M. (1982). The treatment delivery system and alcohol abuse in women: Social policy implications. *Journal of Social Issues*, **38**, 139–151.

Brazaitis, T.J. (1993). Cleveland third worst: ZPG asserts. *The Cleveland Plain Dealer*, p.1.

Brotman, R., Hutson, D., & Suffet, F. (1985). *Pregnant addicts and their children: A comprehensive care approach.* New York Center for Comprehensive Health Practice, New York, Medical College.

Chavkin, W. (1990). Drug addiction and pregnancy: Policy crossroads. *Public Health and the Law*, **80**, 483–487.

DeLeon, G. (1988). Therapeutic community research facts: What we know. *Therapeutic Communities of America News*, **Summer**, 1–2.

Feig, L. (1990). *Drug exposed infants and children: Service needs and policy questions.* Washington, DC: U.S. Office of Social Service Policy, Division of Children, Youth and Family Policy.

Finkelstein, N. (1990). *Treatment issues: Women and substance abuse.* Washington, DC: National Coalition on Alcohol and Drug Dependent Women and Their Children.

Finkelstein, N. (1993). Treatment programming for alcohol and drug-dependent pregnant women. *The International Journal of the Addictions*, **28**, 1275–1309.

Finnegan, L. (1991). *The clinical management of the pregnant drug, dependent woman.* Workshop presented at the NIDA Conference on Drug Abuse Research and Practice, an Alliance for the 21st Century, Washington, DC.

Furst, C.I., Beckman, L.I., Nakamura, C.Y., & Weiss, M. (1981). *Utilization of alcoholism treatment services.* Los Angeles: University of California at Los Angeles Alcohol Research Center.

Gomby, D.S., & Shiono, P.H. (1991). Estimating the number of substance-exposed infants. *Future Child*, **1**, 17–25.

Institute for Health Policy, Brandeis University. (1993). *Substance abuse: The nation's number one health problem. Key indicators for policy.* Princeton, NJ: The Robert Wood Johnson Foundation.

Liang H. (1991). *A profile of female clients admitted to publicly funded treatment in FY 1991.* Boston: Report to the Massachusetts Department of Public Health by Health and Addictions Research, Inc., January.

Simpson, K.K., & Sells, S.B. (1988). Effectiveness of treatment for drug abuse: An overview of the DARP research program. *Advances in Alcohol and Substance Abuse*, **2**, 7–29.

Stevens, S.J., & Arbiter, N. (1995). A theraputic community for substance-abusing pregnant women and women with children: Process and outcome. *Journal of Psychoactive Drugs*, **27**, 49–56.

Tracy, C.E., & Williams, H.C. (1991). Social consequences of substance abuse among pregnant and parenting women. *Pediatric Annals*, **20**, 548–553.

U.S. Department of Health and Human Services. (1993). *Eighth special report to the U.S. Congress on alcohol and health from the secretary of Health and Human Services.* Alexandria, VA: EEI.

U.S. Department of Health and Human Services. (1991a). *Drug abuse and drug abuse research. The third triennial report to Congress from the secretary, Department of Health and Human Services.* Rockville, MD: Author.

U.S. Department of Health and Human Services. (1991b). *National Household Survey on Drug Abuse. Population estimates.* Rockville, MD: National Institute on Drug Abuse, 91-1732.

Wexler, K.K., Falkin, P., & Lipton, D. (1990). Outcome evaluation of prison TCs for substance abuse treatment. *Criminal Justice and Behavior*, **17**, 71–72.