A Randomized Trial of an Interim Methadone Maintenance Clinic

ABSTRACT

Background. Interim methadone maintenance has been proposed as a method of providing clinically effective services to heroin addicts waiting for treatment in standard comprehensive methadone maintenance programs.

Methods. A clinic that provided initial medical evaluation, methadone medication, and AIDS education, but did not include formal drug abuse counseling or other social support services was established in New York City. A sample of 301 volunteer subjects recruited from the waiting list for treatment in the Beth Israel methadone program were randomly assigned to immediate entry into the interim clinic or a control group.

Results. There were no differences in initial levels of illicit drug use across the experimental and control groups. One-month urinalysis follow-up data showed a significant reduction in heroin use in the experimental group (from 63% positive at intake to 29% positive) with no change in the control group (62% to 60% positive). No significant change was observed in cocaine urinalyses (approximately 70% positive for both groups at intake and follow-up). A higher percentage of the experimental group were in treatment at 16-month follow-up (72% vs 56%).

Conclusions. Limited services interim methadone maintenance can reduce heroin use among persons awaiting entry into comprehensive treatment and increase the percentage entering treatment. (*Am J Public Health*. 1991;81:1185–1191)

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Introduction

Expansion of drug abuse treatment programs has been one of the more frequently recommended means for controlling the spread of the human immunodeficiency virus (HIV) and AIDS among intravenous drug users (IVDUs). In the United States, the Presidential Commission on the HIV Epidemic[1] and the National Academy of Sciences[2,3] have both advocated "treatment on demand" (providing immediate voluntary entry into treatment) for IVDUs. The National Institute on Drug Abuse has determined that providing treatment for IVDUs will be its primary strategy for reducing the spread of HIV among drug injectors.[4]

The Food and Drug Administration (FDA) has proposed changing the regulations governing methadone maintenance treatment in the United States to permit interim methadone treatment. The term "interim" refers to the provision of limited services to patients awaiting treatment positions in comprehensive methadone programs. Interim clinics would provide intake physical examinations, education about AIDS, and methadone medication to prevent narcotic withdrawal symptoms and to block the euphoric effects of heroin. The methadone would be dispensed daily by a nurse so that there would be frequent contact between the patient and the medical staff and minimal opportunity for diversion of the medication. Interim clinics would not be required to provide ongoing drug abuse counseling, vocational rehabilitation, or the other social services that are incorporated in current federal regulations governing methadone maintenance treatment and that are integral components of most drug-free programs.

According to their proponents, interim clinics would not replace regular methadone maintenance programs, but would provide limited services to heroin addicts who would otherwise be on waiting lists and receiving no drug abuse treatment. The limited services are expected at least to reduce heroin use and the AIDS risks associated with heroin use. Opponents argue that interim methadone maintenance would not address the multiple social and vocational needs of most heroin addicts, and that implementation of limited service treatment might impede expansion of more comprehensive treatment programs, or, in a time of limited public resources for drug abuse treatment, even replace more comprehensive treatment.[1] (For an extended discussion of the proposed FDA regulations that would have permitted interim methadone maintenance treatment see the transcript of hearings conducted by the Select Committee on Narcotics Abuse and Control of the U.S. House of Representatives, March 23, 1990.)

The intensity of debate notwithstanding, there are relatively few data on the effectiveness of interim methadone clinics. Hong Kong and The Netherlands both have some methadone maintenance pro-

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grams that provide few supportive services beyond basic dispensing of the medication. These programs are generally considered effective within those societies,[5,6] but the effectiveness of interim methadone maintenance might be different in the United States, due to cultural differences with respect to drug use and the higher percentage of polydrug use among US heroin addicts. We report here on a random assignment evaluation of an interim methadone clinic in New York City. Subjects receiving interim clinic services were compared to waiting list controls. Change in heroin use was the primary outcome measure utilized; changes in cocaine use and entry into conventional treatment were also examined.

Methods

Interim Clinic Services

The interim clinic was opened in February 1987. It was staffed by a one-quarter-time physician, one full-time registered nurse, one clinic coordinator, one outreach worker, and one full-time research interviewer. The services provided within the clinic included a standard physical examination upon admission and methadone administered by a nurse 5 days per week. Saturday medication and a single take-home dose were provided at another site in the same building. AIDS education, with free distribution of condoms, was also provided at the interim clinic. Urine samples were collected biweekly for toxicologic analyses, which included thin layer chromatography with confirmation by gas chromatography/mass spectrometry performed by Damon Clinical Laboratories of New York.

Results of the urinalysis were known to the treatment staff, but not incorporated into any treatment plan or discussed in formal counseling sessions, as they generally would be in a comprehensive methadone treatment program. Minimal counseling was available on an ad hoc, informal basis, and other supportive service needs could be addressed only by referral to community agencies. The physician could identify medical problems but, except for the most routine of interventions, had to refer patients elsewhere for treatment.

The initial dose of methadone was set by the examining physician based on the examination and drug use history and was typically 20 to 30 mg/day. This initial dose was then increased according to an escalation schedule preset by the physician, generally by 10 mg every third day until a maintenance dosage of approximately 80 mg/day was reached. The nurse was authorized to modify the rate of dose escalation or to stop the escalation process at a stabilization dose other than the scheduled maximum. Dosage adjustment decisions generally reflected subjective perceptions of the patients and instances of missed or vomited medication.

Subjects and Data Collection

Subjects were recruited from the waiting lists of the Beth Israel methadone maintenance program. Separate waiting lists are maintained for the 23 Beth Israel clinics, and there is substantial variation in the time between application for treatment, placement on a waiting list, and admission to one of the regular clinics. At the time of the interim clinic study, the average time spent on a waiting list was approximately 3 months. Participation in the study would be from the time of enrollment until an opening occurred at the clinic to which the subject had originally applied. At that time the subject would be enrolled in the regular clinic and cease participation in the interim clinic study. Participation in the study would neither decrease nor increase the time spent waiting for an opening in a regular clinic.

A written informed consent for participation in the study was obtained from each subject. The project was approved by Beth Israel's Institutional Review Board and the FDA (Investigational New Drug number 28 232). A questionnaire covering demographics, drug use history, AIDS risk behavior, and knowledge of AIDS was administered by a trained interviewer. The subjects were informed that medical and drug use information collected at the interim clinic would not be revealed to the comprehensive clinic to which they would ultimately transfer. Subjects were paid $35 for the completion of intake data collection. A follow-up questionnaire, focusing on drug use since the preceding interview, was administered every 2 weeks.

Residual serum from the blood sample collected as part of the intake examination was stored at −70 °C for later HIV testing. Since the object of the study was to examine the effects of a methadone treatment program that did not include formal counseling, the actual HIV counseling and testing were postponed until completion of the evaluation study. (Relationships between serostatus and drug use behavior will be presented elsewhere.)

After completion of the initial data collection, subjects were assigned randomly to experimental treatment or control conditions. The random assignment was done by administrative staff at a different location. The intake interviewers frequently asked to have individuals placed in the methadone treatment group based on data obtained in the intake interview, but, consistent with the protocol, these requests were not honored. Subjects in the control condition were paid $20 for follow-up interviews. Data were analyzed using the PRODAS system of statistical programs.[7]

Change in Protocol

For the first 3 months after the study inception, there were three experimental conditions: the experimental treatment group immediately received interim clinic treatment as described above and a biweekly follow-up interview; the frequent contact control group received the biweekly follow-up interview, free condoms, and had biweekly urine samples collected; and the minimal contact control group were not reinterviewed until the end of their participation in the study.

Subject recruitment under these conditions was initially rapid, but then slowed dramatically. Discussions with recruited subjects and potential subjects applying for methadone treatment at Beth Israel indicated that the major difficulty was the perception of a low probability (one chance in three) of receiving methadone treatment in the interim clinic study.

In August 1987, the protocol was revised to increase subject recruitment. The minimal contact control group was eliminated from the study, and the time spent in the frequent contact control group was limited to 1 month, after which control subjects were switched into the experimental group and received methadone medication. After this modification, there was no difficulty in recruiting new subjects for random assignment into experimental and control conditions and the 150-person limit on patients receiving methadone in the interim clinic was soon reached. Data from the discontinued minimal contact control group are not included in this report, but are available from the senior author (S.R.Y.).

Data Collection Limitations

One research staff member was designated to conduct baseline and biweekly research interviews for the experimental and control subjects. The outreach worker, who was bilingual (Spanish/English), occasionally assisted in interviewing. It is thus unlikely that the sub-

jects maintained a clear separation between clinic treatment staff and research staff, which may have contributed to underreporting of drug use as presented below.

Given the number of subjects and the severe limitation of clinic space and personnel, some urine collections and interviews were not conducted at the required intervals, especially in the first few months of the study when new intakes and biweekly follow-up interviews for both experimental and control subjects were needed. As the study progressed and the control participants reached their 30th day and were transferred to the experimental treatment group, the total number of study participants stabilized at the maximum of 150 patients receiving methadone, and the rates of missed urines and interviews diminished considerably.

Results

Table 1 shows demographic characteristics and drug use histories for the 301 subjects who were assigned to the experimental and frequent (biweekly) contact control conditions. Ninety-eight percent reported that they had injected drugs at some time in their lives; 92% reported injecting in the month prior to entry into the study, with a mean of over three injections per day. There were no significant differences between groups in demographics or drug use histories. More than half of those who were tested for HIV were seropositive, with a higher percentage seropositive in the control group.

Of the 301 subjects initially enrolled, no follow-up data were obtained from 41 subjects (20 from the experimental group, 21 from the control group). Of these 41 subjects, 32 were lost to contact, 8 were admitted to traditional drug treatment, and 1 was incarcerated before follow-up data could be collected.

Since control subjects were shifted into the experimental treatment after 1 month, primary outcome comparisons between the two groups must be restricted to behavior within that time period. Complete baseline and 1-month follow-up data are available for 169 subjects initially assigned to experimental and frequent contact control groups. The 1-month period was operationally defined as between 15 and 44 days after intake. For subjects with multiple follow-up interviews and urine samples during their participation in the study, the interview and urine sample collected nearest 30 days was used, with the restriction that data from the control subjects reflected only time spent in the control condition. Table 2 presents demographic and drug use history data for these subjects. They do not differ significantly on any of these variables from the total groups assigned to experimental treatment and frequent contact control conditions.

TABLE 1—Selected Demographic and Drug Use Characteristics for Subjects at Entry into Study (N = 301)

Characteristics	Experimental Treatment Group (n = 149) N	(%)	Frequent Contact Group (n = 152) N	(%)	χ^2 or t value	*P* Value
Sex						
Male	121	(81)	118	(78)		
Female	28	(19)	34	(22)	0.59	.44
Race						
White	15	(10)	16	(11)		
Black	44	(30)	61	(40)		
Hispanic	89	(60)	75	(49)	3.93	.14
Currently employed	22	(15)	21	(14)	0.06	.85
Living with sexual partner	59	(40)	62	(41)	0.04	.83
Prior drug treatment	115	(78)	122	(81)	0.43	.51
Prior MMTP treatment[a]	89	(60)	81	(53)	1.27	.26
HIV status						
Positive	65	(50)	93	(64)		
Negative	66	(50)	52	(36)	5.93	<.05
Average age at baseline (yr)	34.8		34.4		t=−0.51	.61
Average age began IV drug use (yr)	18.6		19.4		t=1.15	.25
Average age began IV drug use on regular basis (yr)	19.5		20.2		t=1.02	.31

[a] MMTP = methadone maintenance treatment program.

Table 3 presents baseline self-reported drug use and urinalysis results at enrollment for the 169 subjects with complete baseline and follow-up data. There is a general agreement between the self-reports and the urinalysis results. None of the differences between the two groups are statistically significant by chi-square tests.

Table 4 presents self-reported drug use and urinalysis results at the 1-month follow-up. There is clearly substantial underreporting among members of the experimental treatment group. Factors associated with discrepancies between self-reported drug use and urinalysis results will be examined in a separate paper. The drug use analyses presented in this report will be restricted to urinalysis results only. Comparisons of the urinalysis results across experimental treatment and control groups at 1 month using chi-square tests show less heroin use ($\chi^2 = 15.35$, $P < .001$) and more methadone use ($\chi^2 = 52.86$, $P < .001$) in the experimental group. The very small difference in cocaine use was not significant ($\chi^2 = .09$, $P = .7$) between the two groups.

Comparisons from intake to the 1-month time period within each group showed significantly reduced heroin use (63% to 29%, McNemar $\chi^2 = 16.45$, $P < .001$) and significantly increased methadone use in the experimental group (33% to 92%, McNemar $\chi^2 = 36.98$, $P < .001$). The decrease in cocaine use in the experimental treatment group was not significant (from 77% to 66%, McNemar $\chi^2 = 1.33$, $P < .3$). In the control group, neither the heroin nor cocaine use percentages changed significantly, but there was also a trend toward increased (illicit) methadone use (26% to 37%, McNemar $\chi^2 = 3.225$, $P < .10$).

To determine whether the 169 subjects included in Table 4 were a biased sample of all subjects in the study, we examined urinalysis results for 129 subjects originally assigned to the experimental treatment group and 121 subjects originally assigned to the frequent contact group for whom there was at least one follow-up urinalysis result. These represent 87% of all subjects originally assigned to the experimental treatment group and 80% of all subjects originally assigned to

TABLE 2—Selected Demographic and Drug Use Characteristics for Subjects with 1-month Follow-Up Data (N = 169)

Characteristics	Experimental Treatment Group (n = 75) N	(%)	Frequent Contact Group (n = 94) N	(%)	χ^2 or t Value	*P* Value
Sex						
Male	60	(80)	73	(78)		
Female	15	(20)	21	(22)	0.14	.71
Race						
White	11	(15)	6	(6)		
Black	19	(25)	41	(44)		
Hispanic	45	(60)	47	(50)	7.54	<.05
Currently employed	14	(19)	15	(16)	0.19	.66
Living with sexual partner	31	(41)	41	(44)	0.09	.76
Prior drug treatment	60	(80)	78	(83)	0.25	.62
Prior MMTP treatment[a]	50	(67)	51	(54)	2.67	.10
HIV status						
Positive	24	(36)	59	(67)		
Negative	43	(64)	29	(33)	14.91	<.001
Average age at baseline (yr)	33.9		35.7		t=1.71	.09
Average age began IV drug use (yr)	18.3		19.7		t=1.55	.12
Average age began IV drug use on regular basis (yr)	18.8		20.8		t=1.95	.05

[a] MMTP = methadone maintenance treatment program.

TABLE 3—Urinalysis and Self-reported Drug Use at Baseline for Subjects with 1-month Follow-up Data (N = 169)

Drugs	Experimental Treatment Group (n = 75) n	(%)	Frequent Contact Group (n = 94) n	(%)	χ^2	*P* Value	Odds Ratio (95% CI[a])
Heroin metabolites							
Urinalysis	47	(63)	58	(62)	0.02	.90	0.960 (0.513–1.795)
Heroin							
Self-report	68	(91)	89	(95)	1.02	.31	
Methadone, nonprescription							
Urinalysis	25	(33)	24	(26)	1.23	.27	0.686 (0.352–1.337)
Self-report	40	(53)	53	(56)	0.16	.70	
Heroin metabolites and/or methadone							
Urinalysis	56	(75)	66	(70)	0.41	.52	0.800 (0.404–1.583)
Heroin and/or nonprescription methadone							
Self-report	72	(96)	91	(97)	0.08	.77	
Cocaine							
Urinalysis	58	(77)	67	(71)	0.79	.37	0.727 (0.361–1.467)
Self-report	63	(84)	83	(88)	0.65	.42	

[a] CI = confidence interval.

the frequent contact control group. The urine sample collected closest to 30 days in the study was used for this analysis. For the experimental treatment group, the urinalysis at follow-up showed 47 (36%) had used heroin, 99 (77%) had used cocaine, and 117 (91%) had used methadone. For the frequent contact control subjects, 72 (60%) had used heroin, 93 (77%) had used cocaine, and 49 (40%) had used methadone. These results are similar to those reported in Table 4, although the percentage for heroin use in the experimental treatment group and the percentages for cocaine use in both the experimental and frequent contact control groups are modestly but not significantly higher. The difference in heroin metabolites between the experimental treatment group and the frequent contact control group at follow-up is still highly significant ($\chi^2 = 13.22$, $P < .001$).

In order to further explore possible determinants of heroin use at 1 month, univariate analyses (chi-square tests and *t* tests) on the 169 subjects with complete intake and 1-month follow-up data were performed to determine if demographic characteristics, drug history variables, or cocaine use were associated with heroin use at 1 month. Only use of cocaine at 1 month and assignment to the control group were significantly associated with heroin use at 1 month, as presented in Table 5.

Inspection of the data showed similar relationships between heroin use and cocaine use at 1 month for both the experimental treatment group and the control group. Among the 75 subjects in the experimental treatment group, 25% had evidence of both cocaine and heroin use in their urine sample, 4% had evidence of heroin use only, 43% had evidence of cocaine use only, and 28% had no evidence of either drug ($\chi^2 = 4.82$, $P < .05$). The relationship was slightly weaker among the 94 subjects in the control group: 46% had evidence of both cocaine and heroin use in their urine sample, 14% had evidence of heroin use only, 24% had evidence of cocaine use only, and 16% had no evidence of either drug ($\chi^2 = 2.86$, $P < .09$). Because the urinalysis performed was capable of detecting cocaine use only for the previous several days and was capable of detecting heroin use for the previous week, these results probably underestimate concurrent use of both drugs for both groups.

Multiple logistic regression was used to examine whether treatment group status and the presence of cocaine metabolites in the 1-month urine sample were independent predictors and whether interactions between experimental group status and demographic or behavioral variables were associated with heroin use at 1 month. Such interaction effects would indicate subjects for whom interim clinic treatment might be particularly effective

or not effective in reducing heroin use. The final regression equation is presented in Table 5. Both treatment group status and cocaine use at 1 month were independent predictors of heroin use at 1 month, and none of the possible interactions between treatment group and the demographic and behavioral variables were significant.

A final aspect of the experimental treatment versus control group comparisons was to examine the numbers of subjects who had entered conventional drug treatment programs at the end of data collection in June 1988, i.e., 16 months after the program began. As shown in Table 6, of the 301 subjects originally enrolled in the experimental treatment and the frequent contact control groups, 107 (72%) of those in the experimental group had been enrolled in conventional drug treatment by this data vs 85 (56%) of the controls. This difference for entering conventional treatment was statistically significant ($\chi^2 = 8.23$, $P < .005$).

TABLE 4—Urinalysis and Self-reported Drug Use at 1-Month Follow-up (N = 169)

Drugs	Experimental Treatment Group (n = 75) n	(%)	Frequent Contact Group (n = 94) n	(%)	χ^2	P Value	Odds Ratio (95% CI[a])
Heroin metabolites							
Urinalysis	22	(29)	56	(60)	15.35	<.001	3.550 (1.862–6.771)
Heroin							
Self-report	21	(28)	83	(88)	64.08	<.001	
Methadone,							
Urinalysis	69	(92)	35	(37)	52.86	<.001	0.052 (0.020–0.131)
Methadone, nonprescription							
Self-report	1	(1)	37	(39)	34.61	<.001	
Heroin metabolites and/or methadone							
Urinalysis	71	(95)	68	(72)	14.24	<.001	0.147 (0.049–0.444)
Heroin and/or nonprescription methadone							
Self-report	21	(28)	88	(94)	78.44	<.001	
Cocaine							
Urinalysis	51	(68)	66	(70)	0.09	.76	1.109 (0.575–2.138)
Self-report	29	(39)	79	(84)	37.24	<.001	

[a] CI = confidence interval.

Discussion

This study was based on the hypothesis that participation in a rapid intake, limited service methadone maintenance treatment program would reduce illicit drug use and AIDS risk behaviors among persons with a history of heroin addiction. The study attracted a group of subjects with long histories of illicit narcotic use; the great majority had previous drug abuse treatment experience. These subjects are similar in their demographic characteristics to others admitted to the Beth Israel Methadone Maintenance Treatment Program during the same time period and to other persons admitted to New York State–funded methadone treatment programs in New York City during the same time period.[8] The rate of recent cocaine use was high among these subjects, with over 60% showing cocaine metabolites in the urine specimen taken at study entry.

Random assignment studies have been difficult to conduct in the drug abuse treatment field because of difficulties in recruiting subjects into and keeping them in treatment conditions that they do not want to be in. This study experienced similar difficulties when subjects had only a one in three chance of receiving methadone treatment. After the change in the protocol, the random assignment to either immediate limited service methadone treatment or a time-limited frequent contact control group appears to have been successful. There were few difficulties in recruiting subjects with this change and there was only one variable (HIV status) on which the two groups differed. Since the actual testing of the residual serum for HIV antibody was not done until after random assignment and data collection for this study had been completed, there is no way in which the test results could have influenced the randomization, and we assume that this difference between the experimental treatment and control groups was a random effect.

Ethical considerations required that only volunteers be used in this experimental study. Thus it is not possible to ascertain how these subjects might have differed from persons on the waiting list who chose not to participate and simply waited until a regular treatment position was available. Subject recruitment varied with the perceived likelihood of receiving methadone treatment in the interim clinic, suggesting that large numbers of persons on waiting lists would apply for interim treatment if they were certain that they would receive such treatment.

Because of the substantial discrepancies in self-reported drug use at follow-up, only urinalysis results could be used as a measure of follow-up drug use. Such discrepancies are common when clients in treatment suspect that drug use will lead to some form of negative sanctions.[9] Restricting the comparisons to the urinalysis data prevented assessment of the AIDS risk associated with drug injection, but given the long histories of drug injection among these subjects, it is a reasonably safe assumption that a very high percentage of both heroin and cocaine use was by injection.

Based on the urinalysis results, participation in the interim clinic was associated with a substantial decrease in heroin use. Heroin use at 1 month was reduced by approximately half for the experimental treatment group compared to either heroin use at intake or heroin use among the control group at 1 month. Immediate intake into the limited services methadone treatment was also associated with a higher percentage of subjects being enrolled in comprehensive drug treatment. It is not surprising that receiving even limited interim services would facilitate entry into conventional treatment compared to being on a waiting list. Little is known about why many drug users apply for treatment and are placed on waiting lists but do not enter treatment, but at the least they must be considered missed opportunities for reducing illicit drug use and preventing HIV infection.

The regression analysis for possible interactions between experimental group status and other demographic and behav-

TABLE 5—Potential Predictors of Heroin in Urine Sample at the 1-Month Follow-up (n = 169)

Potential Predictors	Heroin in Urine at 30 Days N	(%)	χ^2 or t Value	*P* Value
Group				
Experimental	22	(29)		
Control	56	(60)	15.35	<.001
Sex				
Male	57	(43)		
Female	21	(58)	2.73	.10
Ethnicity				
White	5	(29)		
Black	27	(45)		
Hispanic	46	(50)	2.50	.29
Employment status at baseline				
Employed	11	(38)		
Not employed	67	(48)	1.01	.31
Living with sexual partner at baseline				
Yes	33	(46)		
No	45	(46)	0.005	.94
Previous drug treatment				
Yes	61	(44)		
No	17	(55)	1.15	.28
Previous MMTP treatment[a]				
Yes	43	(43)		
No	35	(51)	1.29	.25
HIV Status				
Positive	39	(47)		
Negative	34	(47)	0.0008	.98
Cocaine use at 30 days				
Yes	62	(53)		
No	16	(31)	7.15	<.01
Average age at baseline (yrs)	34.9		t=.03	.97
Average age began IV drug use (yrs)	19.6		t=1.07	.29
Average age began IV drug use (yrs) on regular basis	20.4		t=.91	.36

Note. In the final logistic regression equation: beta for the intercept = −0.29, with a χ^2 of 0.78, p = .3774; beta for group status = −1.30, with a χ^2 of 14.89, P = .0001; beta for cocaine in the urine = .99, with a χ^2 of 7.11, P = .008. Variables were dummy coded to 0/1. For group, a value of 1 indicates that the patient was in the treatment group. For presence/absence of drugs, a 1 indicates that the drug was present in the urine at 30 days.

[a]MMTP = methadone maintenance treatment program.

TABLE 6—Status of Subjects at End of Study (N = 301)

Status	Experimental Treatment Group (n=149) N	(%)	Frequent Contact Group (n=152) N	(%)
Lost to Contact	40	(27)	64	(42)
Drug Treatment	107	(72)	85	(56)
Jail	2	(1)	1	(1)
Death	0		2	(1)

ioral characteristics of the subjects did not produce any significant findings. Thus, the present data do not provide evidence for what types of subjects would do comparatively better or worse in interim methadone treatment. Heroin use was more common among interim treatment subjects using cocaine than those not using cocaine. Indeed, it was rare to find a treatment group subject who had evidence of heroin use but not cocaine use in the follow-up urine sample despite the greater time sensitivity for detecting heroin use. Subjects using cocaine may have used heroin simultaneously in "speedball" injections, which produce a drug effect that many users consider preferable to either drug taken alone. Cocaine users might also have taken heroin as self-medication to reduce the dysphoria following cocaine runs. Screening cocaine users out of interim methadone treatment would probably lead to greater reductions in heroin use during treatment, but would not solve the problem of what to do with the large group using both drugs.

The National Academy of Sciences[2,3] and the Presidential Commission on the HIV Epidemic[1] have recommended large-scale expansion of drug treatment in the United States as a method of reducing both illicit drug use and new HIV infections. Even if a financial commitment were made to provide large-scale expansion, it would still take a period of years for new sites to be found and for staff to be hired and trained. During this multi-year process, interim forms of treatment could be of substantial benefit as drug users waited for openings in conventional treatment. The present study did not compare interim treatment to conventional treatment, and we would object to using these findings as a rationale for substituting limited interim services for conventional treatment. We do believe, however, that these findings strongly support providing interim services rather than leaving drug users on waiting lists for conventional treatment. □

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The Environmental Dental Association Raises Ecological Questions as Consumer Reports Purports Mercury/Silver Fillings "Safe"

The May 1991 issue of *Consumer Reports* notes that each year up to 100 million silver-colored [amalgam] fillings are used to restore decayed teeth. The article reports that almost half of each filling is mercury. The Environmental Dental Association (EDA), a San Diego–based organization consisting of nearly 700 practitioners, maintains that the dental industry has overlooked the environmental issues associated with mercury use.

Over 100 tons of mercury are used per year in the dental industry in the United States alone. Mercury, a known poison, is more toxic than lead or arsenic. Invariably, unused amalgam material and old fillings containing mercury wind up in the hands of unregulated scrap metal dealers or in our landfills. An alarming portion of the silver/mercury filling material goes directly down the drain from dental offices, polluting our lakes, rivers, and other bodies of water. The EDA is currently initiating steps to improve on-site water filtration systems in dental offices, which would prevent further mercury contamination of water supplies.

According to the San Diego County Office of Hazardous Waste Management, the determination of hazardous waste status of dental amalgam is incumbent upon the dentist. Therefore, disposal of dental amalgam is essentially unmonitored. A spokesperson for that department stated that they have had a marked increase in calls concerning this issue, which is likely to result in stricter controls in the future.

Mike Cressler, director of Quicksilver Recycling, one of California's few treatment facilities licensed to accept mercury, recently advised the EDA that the amount of environmental contamination from dental mercury residue is significant. He expressed concern over the lack of general awareness on the part of the dental profession regarding the hazardous nature of dental waste, particularly dental amalgam. Cressler emphasized that dentists need to become more environmentally aware. He projects that the increased incidences of health and environmental liability for dentists who do not comply with environmentally-responsible practices, will likely invoke changes in the industry.

The EDA is also concerned about hazardous indoor air quality within dental offices, posing yet another risk to dental personnel who breath mercury vapor on a regular basis. The Occupational Safety and Health Administration (OSHA) estimates that 10% of all dental offices are severely mercury-contaminated. Most have adequate decontamination systems and fail to enforce the wearing of protective gear.

An FDA advisory committee met on March 15 to evaluate the use of mercury in dentistry. Although there was insufficient evidence to warrant a position that silver/mercury fillings are either safe or unsafe, two leading toxicologists testified that the issue was of legitimate concern. Research protocols to investigate health effects are currently being developed.

According to transcripts from the FDA advisory meeting, one of the world's leading authorities on mercury toxicity, Lars Friber, MD, PhD, said that "dental amalgam, from the strictly toxicological point of view, is an unsuitable dental filling material . . . steps should be taken to use, as far as possible, other material than amalgam." Contrastly, *Consumer Reports* concludes that "all risks have to be measured against the alternatives . . . amalgam fillings are still your best bet."

Although the heated debate rages on, the EDA contends that consumers of dentistry should be informed about the nature of the filling materials used and should be advised of all available options. *Consumer Reports* pointed out that the American Dental Association (ADA) opposes any informed-consent laws requiring dentists to inform patients of the possible hazards of mercury fillings and opposes discussion of alternatives.

According to the article published in *Consumer Reports*, "The question in the amalgam debate is whether the minute amount of mercury vapor thought to emanate from fillings has any health effect at all." EDA president, Joyal W. Taylor, DDS, responded to the comment as follows: "As long as this questions remains unanswered, the public deserves the right to know and the right to choose for themselves. Furthermore, we will continue to advocate environmentally responsibly dentistry."

The EDA provides scientific research data, referrals to over 700 mercury-free dentists and doctors throughout the United States and as a public service offers free information packets. The toll-free number for the EDA is 1-800-388-8124.