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Interim versus standard methadone treatment: A benefit–cost analysis ☆,☆☆,★

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ABSTRACT

A benefit–cost analysis was conducted as part of a clinical trial in which newly-admitted methadone patients were randomly assigned to interim methadone (IM; methadone without counseling) for the first 4 months of 12 months of methadone treatment or 12 months of methadone with one of two counseling conditions. Health, residential drug treatment, criminal justice costs, and income data in 2010 dollars were obtained at treatment entry, and 4- and 12-month follow-up from 200 participants and program costs were obtained. The net benefits of treatment were greater for the IM condition but controlling for the baseline variables noted above, the difference between conditions in net monetary benefits was not significant. For the combined sample, there was a pre- to post-treatment net benefit of $1470 (95% CI: −$625; $3584) and a benefit–cost ratio of 1.5 (95% CI: 0.8, 2.3), but using our conservative approach to calculating benefits, these values were not significant.

1. Introduction

US Federal regulations require that methadone treatment of opioid dependence must be accompanied by psychosocial support services. Over much of the past 40 years, this requirement has played a role in limiting the availability of methadone treatment. It has done so in two ways. First, because of frequent turnover among counseling staff in many programs, there were often times when programs had to curtail admissions because they had too few counselors to meet minimum mandated requirements for psychosocial support (Schwartz, Kelly, O'Grady, Gandhi, & Jaffe, 2011). Second, some states have sharply limited the availability of publicly-subsidized methadone treatment while still allowing the establishment of programs for self-paying or privately insured patients. Therefore, patients without private insurance or the means to pay for treatment themselves were obliged to pay for both the methadone and the mandated psychosocial services. If they could not afford both, they could not have either, even if they might have been able to pay for the cost of the medication services alone. The net effect is that pay-for-treatment programs have high drop-out rates (Booth, Corsi, & Mikulich-Gilbertson, 2004) and in many parts of the US there are still people who want methadone treatment but are unable to access it even while the capacity to provide methadone medication alone is underutilized.

In the 1980s, Yancovitz et al. (1991) conducted a study showing that patients receiving methadone alone for 4 weeks (termed interim methadone [IM] by these authors) had significantly lower rates of heroin use and drug injection as compared to waiting list controls. These results prompted the Food and Drug Administration (FDA) and National Institute on Drug Abuse (NIDA) to draft federal regulations to permit "interim methadone" when waiting lists existed. These regulations, which were not approved until 1993, permitted IM for up to 120 days, but only in not-for-profit opioid treatment programs (OTPs) and only for opioid-dependent adults who would otherwise have to wait at least 2 weeks for standard methadone treatment. They also required that a request for IM be submitted to the Substance Abuse and Mental Health Services Administration (SAMHSA) by the highest health officer in the state, and that each individual OTP receive written approval from SAMHSA before providing IM (Federal Register, 1993).

Due to these restrictions, IM was seldom used by OTPs over the next decade, until Schwartz et al. (2006) and Schwartz, Jaffe, Highfield, Callaman, and O'Grady (2007) conducted a random assignment study comparing 4 months (120 days) of IM to waiting list controls. At 4 months, all IM participants were offered standard methadone treatment. They found that the IM condition had significantly lower rates of opioid positive urine tests at 4- and 10-month follow-up compared to the waiting list condition. Furthermore,

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only 27.5% of waiting list participants entered standard methadone treatment by the 10-month follow-up.

In the parent study of the present report, Schwartz and colleagues randomly assigned opioid-dependent adults on a waiting list for one of two OTPs to either IM or to methadone with standard counseling (SM) or at one site to methadone with counseling provided by a counselor with a caseload of about half the standard condition (termed restored methadone [RM] because it restored the caseloads to those more common in the early days of methadone treatment). Participants assigned to IM were admitted to standard methadone by the end of the fourth month. At both 4- and 12- month follow-up, there were no statistically significant differences between conditions in terms of self-reported days of heroin or cocaine use, opioid or cocaine positive drug tests, self-reported days of illegal activity, and arrests (Schwartz, Kelly, O'Grady, Gandhi, & Jaffe, 2012; Schwartz et al., 2011) or HIV-risk behaviors (Kelly, Schwartz, O'Grady, Gandhi, & Jaffe, 2012).

Although there have been a number of benefit–cost studies of drug and alcohol dependence treatment (Flynn, Kristiansen, Porto, & Hubbard, 1999; French, Salome, & Carney, 2002; French et al., 2000; Harwood, Hubbard, Collins, & Rachal, 1988; Koenig, Denmead, Nguyen, Harrison, & Harwood, 1999; Salomé, French, Scott, Foss, & Dennis, 2003), relatively few have presented separately the benefit–cost findings associated with methadone maintenance treatment. For example, a 2003 review of published peer-reviewed papers on economic benefits of a variety of addiction interventions identified only 11 economic studies that met criteria for inclusion (McCollister & French, 2003). Although several of the cited studies included methadone-treated patients among the several modalities of treatment, none broke out separately the benefits and costs of methadone treatment. The one paper that exclusively explored the benefits of methadone treatment was actually a study of the effects of closing a single, publicly-funded methadone program in Miami-Dade, Florida (Alexandre, Salome, French, Rivers, & McCoy, 2002). Not included in the McCollister and French (2003) review was a report on the reduction in criminal behavior in pregnant women treated with methadone (Daley et al., 2000).

Notably, among the studies that presented benefit–cost results of methadone treatment in book chapters and government reports not covered in the review by McCollister and French were those dealing with data from several large multisite studies: Treatment Outcome Prospective Study (TOPS), National Treatment Improvement Evaluation Study (NTIES), and the California Drug and Alcohol Treatment Assessment (CALDATA). Harwood et al. (1988) analyzed data collected in the TOPS study of over 11,000 patients admitted to 41 different programs in the US. This study was limited to the benefits from reductions in crime associated with treatment, including benefits associated with reduced criminal justice system costs, avoided costs to victims of crimes (e.g., value of medical care, property destruction, and lost work and household productivity), and the value of the methadone patients' potential lost productivity resulting from their pursuit of criminal activity rather than legitimate earnings. The study concluded that the benefits to society (including the patients) for an average episode of methadone treatment were about equal to the costs of treatment and the benefits to the non-treated population were four times as great as the treatment costs. However, they noted that benefits were negligible or even negative for treatment of the most criminally active patients.

Flynn, Porto, Rounds-Bryant, and Kristiansen (2002) utilized findings from DATOS (carried out in 1991–1993) which included interviews at baseline, and at 3 and 12 months post index treatment admission at one of 16 OTPs that provided usable cost data in eight cities. Only patients who were still enrolled in treatment at the 3-month follow-up and who completed the 3-month follow-up interview were included in the analysis. As in Harwood et al. (1988), Flynn and colleagues focused on benefits associated with decreased crime and included as benefits the avoided tangible costs to victims of specific crimes and presumed productivity losses associated with patients' careers in crime. The number and types of individual crimes before, during, and after treatment were based on patients' self-reports. Using this general methodology, Flynn and colleagues found that the benefits of treatment exceeded the costs of treatment (in 1992 dollars) both for those who were discharged prior to 1 year (net benefit of $5923 and benefit–cost ratio of 3.06) and for those who remained in treatment for a full year (net benefits of $7168 and benefit–cost ratio of 2.86) with an overall benefit-cost ratio of 3.00 for the total sample.

Flynn et al. (2002) also summarized the findings from two other multi-site benefit–cost analyses that are available only as government reports. The benefit–cost ratios for the NTIES (Koenig et al., 1999) and CALDATA (California Department of Alcohol & Drug Programs, 2004) studies were presented as both benefits to taxpayers (later called non-treated populations) and benefits to society (including patients). For both approaches in both studies, the costs to victims, criminal justice system, and health care utilization were included. In addition, in both studies analyzed from a taxpayer perspective, the cost associated with theft and welfare payments were considered. In the CALDATA analysis from a societal perspective, the patients' potential lost earnings had they been in legitimate employment was considered whereas in the NTIES analysis from a societal perspective, the increase in legitimate earnings was considered. The benefit–cost ratios for non-treated populations in CALDATA were 12.6:1 for those discharged and 4.8:1 for those continuing in treatment, whereas the benefit–cost ratios from a societal perspective were −2.98 for discharged patients and 4.66 for continuing patients. For NTIES the benefit–cost ratio to non-treated populations was 4.90 and the ratio for society was 2.0.

Three peer-reviewed benefit–cost studies which included methadone treatment were published subsequent to the McCollister and French review (Ettner et al., 2006; Godfrey, Stewart, & Gossop, 2004; Salomé et al., 2003). Godfrey et al. used data collected in the National Treatment Outcome Research Study (NTORS) of 54 residential and community drug abuse programs in the United Kingdom. Although they also looked at health care costs, these authors found that the benefits exceeded the costs of treatment, but that most of the benefits were due to reduced crime and costs to victims of avoided crimes. Although the sample included 250 patients in methadone maintenance (and 107 on methadone dose reductions), the benefits and costs of these patients were not broken out by treatment modality.

One of the few peer-reviewed published studies that did break out benefits and costs of methadone maintenance was that of the California Treatment Outcome Project (CalTOP) by Ettner et al. (2006), which included data on 2567 patients in 43 treatment programs across 13 counties in California. However, there were only three methadone programs included in the study with a total sample size of 115 participants. In this study, the methadone patients appeared to exhibit smaller reductions in crime and smaller increases in earnings than patients in outpatient or residential treatment. Even though the authors included the benefits associated with avoided costs to victims of crime in their analyses (as did Flynn et al., 2002 and Harwood et al., 1988), they could not reject the null hypothesis that the benefits of methadone treatment were zero, even though the average benefits were greater than the average treatment costs. The authors believed that the inability to show statistical significance in the benefit–cost ratio for methadone treatment may have been due to the small sample size and inadequate power.

Although Ettner et al. (2006) found that about half of the benefits of methadone treatment were due to patients' avoided health care costs, other studies have found that reductions in crime constitute the main driver of societal benefits. In both the NTORS and CalTOP studies, as in the overall conclusion from the McCollister and French review, most of the benefits of treatment were due to reductions in criminal justice systems costs and costs to victims of crime, with relatively