DRUG LAW ENFORCEMENT: ITS EFFECT ON TREATMENT EXPERIENCE AND INJECTION PRACTICES

Don Weatherburn, Bronwyn Lind and Lubica Forsythe

assisted by Stella Patete, Sandra Sunjic and Deborah Zador

New South Wales Bureau of Crime Statistics and Research

ACKNOWLEDGMENTS

CONTENTS

EXECUTIVE SUMMARY

The aims of this research were to assess whether street-level drug law enforcement encourages heroin users into methadone treatment and to assess the extent to which it promotes unsafe injection practices.

The research was conducted by means of a survey involving face to face interviews with 511 heroin users in central and south western Sydney.

PROFILE OF RESPONDENTS

For the group of respondents included in the survey, the average age at which they first used heroin was just under 19 years. Most had become regular users within two years of first using the drug. Expenditure on heroin among regular users, not in treatment at the time of interview, averaged $140 per day. Two-thirds of those whose heroin-using career had lasted more than ten years had experienced a heroin overdose. The majority of those whose heroin-using career exceeded five years reported some kind of drug-related health problem.

More than half the respondents stated that illegal activity provided the main source of income used for purchasing heroin. More than one-third of respondents reported being stopped at least once a month by police. Nearly 40 per cent had been interrupted by police while using heroin. More than 70 per cent had been arrested for a drug-related offence. Nearly two-thirds of those aged 40 and over (and more than half of all Aboriginal and Asian respondents) had been imprisoned for a drug-related offence. More than 80 per cent of all respondents had friends who had been imprisoned for a drug-related offence and nearly a quarter had family members who had been imprisoned for the same reason. Twenty-five per cent had a drug-related court case pending at the time of interview.

EFFECT OF DRUG LAW ENFORCEMENT ON TREATMENT

The following findings from the research provide support for the role of drug law enforcement in encouraging users into treatment.

- More than 60 per cent of respondents who were in methadone treatment at the time of their interview rated avoiding more trouble with police/courts as an important or very important reason for entering treatment.

- Respondents who were not in methadone treatment at the time of interview were more likely to say they wanted to enter treatment if they had been imprisoned for a drug-related offence. This effect held up when controls were introduced for other factors which influence the likelihood of an individual wanting treatment.

- Respondents who had had a family member or a friend imprisoned for a drug-related offence were more likely to have had some experience of methadone maintenance treatment. These effects held up in the presence of a wide range of other factors which predicted ever having been in methadone maintenance treatment, including living with a child, the legal status of the respondent's main source of income, the usual location in which heroin is obtained, whether the respondent has a friend who uses heroin, whether the respondent has a

friend in treatment, the age and ethnicity of the respondent, the number of years spent regularly using heroin and average daily expenditure on heroin.

- When age and period of time spent regularly using heroin were dropped as controls from the relevant regression model, both the arrest and imprisonment of a respondent for a drug-related offence were found to be significant predictors of having had some experience of methadone maintenance treatment.

The findings were not consistent across all ethnic groups. Respondents of Asian background, in particular, were more likely than other respondents to have been arrested and imprisoned but less likely to have ever been in methadone treatment.

The fact that the level of daily expenditure on heroin was an important predictor of whether a respondent had ever tried methadone treatment also provides evidence that supply-side law enforcement indirectly encourages entry into treatment because the cost of heroin at street level is determined in part by the activities of police engaged in supply-side drug law enforcement.

EFFECT OF DRUG LAW ENFORCEMENT ON SAFE INJECTION PRACTICES

The vast majority of respondents stated that they usually use heroin in a place where they feel safe from the police. To this extent drug law enforcement cannot fairly be said to be responsible for any unsafe injection practices they might engage in. At the same time there are significant differences between those who inject in a safe place and those who do not in the frequency with which they shared and discarded syringes. Those who inject in a place where they do not feel safe from the police were more likely to discard and share injection equipment.

RECOMMENDATIONS

In the light of these findings it is suggested (a) that the ready availability of access to methadone maintenance treatment would make street-level drug law enforcement more effective in reducing drug-related property crime, (b) that police need to work more closely with health authorities in minimising the risk their activities pose to public health, (c) that treatment for heroin dependence needs to be re-designed to increase retention rates, and (d) that further research is needed to identify the factors which inhibit the entry of Aboriginal and Asian heroin users into treatment, to assess the effect of the cost of heroin on the demand for treatment and to assess the relative cost-effectiveness of treatment and prison for drug-related crime.

INTRODUCTION

Since 1985 Australian Governments have been formally committed to a policy of harm minimisation in relation to drug use (Makkai 1999; Ministerial Council on Drug Strategy 1998). According to the National Drug Strategy, harm minimisation aims to 'improve health, social and economic outcomes for both the community and the individual' (Ministerial Council on Drug Strategy 1998, p. 1). But there is no agreement on what produces the harms associated with illegal drugs or how best to minimise them. The National Drug Strategy simply asserts that the goal of harm minimisation is to be pursued through supply-reduction, demand-reduction[1] and harm-reduction strategies (Ministerial Council on Drug Strategy 1998, p.16).

The absence of any shared understanding about the nature and origin of the harms associated with illegal drugs has fostered considerable uncertainty about which of these strategies is most important to harm reduction and what role drug law enforcement should play in the pursuit of these strategies. This uncertainty has been compounded by the fact that harm reduction has often been vociferously promoted by public health and medical professionals as an alternative to reliance on drug law enforcement. And yet, there are no a priori considerations which would justify the assumption that drug law enforcement is necessarily inimical to harm minimisation. Most of those involved in drug law enforcement certainly see themselves as involved in minimising at least some of the harms created by illegal drugs. Whether the tactics they employ to this end are successful or not is an empirical, not a philosophical question.

However, police efforts to empirically defend the relevance of their work to harm reduction have been hampered by the fact that their efforts to control the supply of illegal drugs appear to have failed. This is especially true in the case of heroin. Responsibility for reducing the supply of heroin rests with both State and Federal police. But, despite popular opinion to the contrary there is no evidence that Australian authorities can limit the supply of heroin (Australian Bureau of Criminal Intelligence 1999). Indeed the available evidence suggests that the quantities of heroin which are seized do not exert any effect on the price, purity and availability of heroin at street level (Weatherburn & Lind 1997). Research in the United States paints a similarly dismal picture of attempts to control the supply of illicit drugs (Fagan 1994; MacCoun & Reuter 1998, p. 220; Caulkins & Reuter 1998, p. 604).

Supply-side law enforcement can claim to have kept the street price of heroin higher than it would be in the absence of such enforcement. This probably suppresses demand for the drug. Even here, however, drug law enforcement policy is not without its problems. According to one school of thought, the demand for heroin, is what economists call 'weakly price-elastic'.[2] In other words, increasing the cost of heroin by x per cent, reduces the demand for it by less than x per cent (Wagstaff & Maynard 1988, p. 38). If this claim is accepted, forcing up the price of heroin will only succeed in increasing the profits to drug dealers and the amount of crime which must eventually be committed by users to purchase the drug. On this argument, far from reducing the harm associated with heroin use, supply-side drug law enforcement might actually be increasing it (see Kleiman 1985).

Disenchantment with supply-reduction policies has prompted some to argue that it is better to invest in strategies designed to reduce the demand for illicit drugs than to attempt to control their supply. Demand-reduction policies have a number of advantages. Reducing the demand for an illicit drug can be expected to reduce its

street price, which, in turn, would reduce revenues to drug dealers. The reduced profits available to dealers should tempt some of them to leave the market. Further, reducing the price of illegal drugs would mean that users have to commit less crime to fund their purchases. Any shrinkage in the size of the illicit drug market would also make it easier for drug law enforcement agencies to concentrate their resources. This should make it easier for them to make further gains in suppressing the illegal drug market. All these benefits would accrue even if the demand for the illicit drug in question is inelastic or only weakly elastic.

Demand reduction has historically been thought of as the prerogative of those who run drug treatment and drug education programs. In a seminal analysis of drug enforcement policy, however, Moore (1972) pointed out that the time, effort and risk involved in seeking out reliable dealers and avoiding apprehension by police are no less important in setting the 'effective price' of heroin than the money costs involved in purchasing the drug. Moore called this time, effort and risk the 'search time' for heroin and argued that drug users typically respond to an increase in the search time by seeking ways of consuming less heroin, whether by switching to other drugs, or leaving the heroin market for treatment. This argument suggests that search time should have the same characteristics as the money cost in setting demand for heroin: as it goes up, the quantity of heroin demanded should go down.

Moore's thesis has two attractive features for those involved in drug law enforcement. The first is that, unlike the monetary cost of heroin, when the search time and risk associated with buying heroin go up, no advantage accrues to the heroin seller. The second is that treatment is known to be a very effective means by which to reduce the demand for addictive drugs such as heroin. Methadone maintenance treatment (MMT), in particular, has been shown in a number of studies (several involving randomised controlled trials) to reduce, not only heroin consumption, but also the amount of crime committed to purchase heroin (Hall 1996). These effects are quite substantial and have been verified using both self-report and arrest data. The notion that police might have an important role to play in helping treatment agencies reduce the demand for heroin has therefore attracted a great deal of interest among police and policy-makers.

LAW ENFORCEMENT AND DEMAND REDUCTION

There have been three lines of inquiry into the effect that street-level or demand-side enforcement has on the behaviour of heroin users. One approach has been to study police 'crackdowns' on drug use and/or dealing to see whether they reduce drug use or drug-related crime and disorder. Another approach has been to see whether court-mandated treatment programs are effective in reducing heroin consumption. A third approach has been to see whether contact with police or the justice system prompts heroin users to enter (or remain in) treatment.

Police crackdowns

Police crackdowns provide a good opportunity to test the hypothesis that there is a causal relationship between street-level enforcement and the harm associated with heroin because, at least in theory, they can be carried out using experimental controls. The failure to observe any effect from a police crackdown, however, cannot be taken as evidence that street-level drug law enforcement *per se* exerts no effect on the demand for heroin. It may simply mean that *added* enforcement pressure (i.e. beyond the baseline or comparison group level) exerts no effect on the demand for or harm associated with heroin. Alternatively it may mean that the effects of street-level enforcement on the

demand for heroin only accrue over time. This would occur if, for example, street-level drug law enforcement only prompted heroin users into treatment after they had had a long period of contact with the police and the courts.

Conventional economic analysis of illicit drug markets suggests that street-level drug law enforcement, as long as it is intense enough, should be quite effective in reducing the size of particular drug markets. Caulkins (1993) developed a model of illicit drug markets in which the decision by drug dealers to enter a market was determined by a trade-off between the financial returns expected from the market and the individual enforcement pressure encountered by dealers within the market. Drug sales in the market were assumed to increase with its size (because users are attracted to larger markets) but the level of enforcement pressure on each individual dealer was assumed to decrease with the number of dealers (because police resources are spread out over a larger pool of 'targets'). Given these assumptions Caulkins was able to show that, if the enforcement pressure on a particular drug market can be made high enough, the market will not only reduce in size but should permanently collapse.

Initial research on this topic appeared to support this line of reasoning. The most encouraging results come from the study of a police crackdown which occurred in Lynn, Massachusetts (see Worden, Bynum & Frank 1994). Interviews with residents and merchants in the city indicated that, following the crackdown, the volume of visible drug transactions decreased. Futhermore, interviews with treatment workers and heroin addicts suggested that it became riskier and harder to buy heroin. Drug treatment centres reported an 85 per cent increase in demand for treatment. Burglaries, robberies and other forms of drug-related crime also decreased in the year following the crackdown. Unfortunately, the study did not involve a control group. For this reason the possibility cannot be ruled out that some or all of the positive effects might have been observed in the absence of the police crackdown.

Worden, Bynum and Frank (1994) reviewed the results of other studies of police crackdowns and found results which are more ambiguous. A later crackdown in Lawrence, Massachusetts failed to produce the same effect. Interviews with addicts indicated only a small reduction in the availability of heroin and while some drug-related crimes fell, others increased. Studies of police crackdowns in New York City have produced both positive and negative effects. A crackdown on the Lower East Side of Manhattan reduced the amount of street dealing, increased the demand for drug treatment and appeared to reduce crime. Informal reports in these locations also suggested considerable improvements in public amenity in the areas where the crackdown took place. Worden, Bynum and Frank (1994), however, cite a report in the New York Times indicating that another crackdown in Harlem was largely unsuccessful in reducing street dealing and had little effect on crime.

The utility of these early studies of police crackdowns is limited by their lack of methodological rigour. The most rigorous study to date of a police crackdown on drug 'hotspots' was that conducted by Weisburd and Green (1995). They identified 56 drug 'hotspots' using police drug arrest data. These hotspots were placed into four groups according to the level of drug-related activity in each hotspot. Hotspots within each group were then allocated randomly to treatment and control groups. Officers associated with the treatment group of hotspots were made individually responsible for enforcement in particular hotspots. During the 'implementation stage' the officer responsible for a hotspot coordinated 'sweeps' of the area by a dozen or more patrol officers and action by local government health and licensing authorities against the owners of premises involved in drug dealing and use.

Police calls for service provided the main indicator of crime and crime-related activity. They were monitored in the seven months prior to and after the intervention both within and outside the areas where intervention took place. The results of the study revealed that calls for service in relation to violent or property offences did not change in response to the intervention. Both treatment and control groups showed evidence of a general increase in the number of calls for disorder over the course of the experiment. The increase was much less marked for the treatment group, however, suggesting that the crackdown might have at least slowed down a naturally occurring increase in calls for service in relation to disorder. A check for displacement revealed, moreover, that the intervention had reduced drug-related calls for service in areas outside those where an intervention took place.

Although the crackdown examined by Weisburd and Green produced a diffusion of benefits rather than a displacement of problems, there is some correlational and ethnographic evidence to suggest that higher drug enforcement in one area can increase the level of drug-related activity in an adjoining jurisdiction (Rasmussen, Benson & Sollars 1993; Maher, Dixon, Lynskey & Hall 1998). The mere fact of displacement, even complete displacement, does not by itself mean that a crackdown has failed to produce any benefits (see Caulkins 1992). Displacement may occur without being either complete or permanent and it may produce a pattern of drug-related activity which has lower net social costs (e.g. displacement of drug-use activity away from vulnerable adolescent populations). It is obvious, however, that the scale, pattern and duration of displacement is of crucial importance in judging whether a crackdown has been successful.

At first blush, the conflicting results obtained in studies of police crackdowns are puzzling. However the effects of a crackdown probably depend upon a wide range of contextual factors. Lee (1993), for example, has pointed out that increased enforcement action against those who use or possess illicit drugs may in some circumstances prove counter-productive. To illustrate this point Lee developed an economic model of illicit drug markets in which drug users respond to increased enforcement or criminal justice pressure by reducing the quantity of drugs they hold at any given time and compensating for this by buying drugs more frequently. This tactic ends up magnifying the risks faced by dealers. To compensate themselves for this increased risk they respond by increasing the supply price of the drug in question. The result is that, in Lee's model, unlike Caulkins model, street-level law enforcement increases rather than decreases expenditure on illegal drugs.

Lee's suggestion that the effects of a police crackdown depend in part on the means by which a crackdown is effected and the defensive options available to users and dealers is supported by a participant observation study carried out in Minneapolis and Kansas City by Buerger (1992). He points out that dealers in these locations employed a variety of tactics to thwart the effects of street-level drug law enforcement. These tactics include keeping only small quantities of drugs in their possession, exchanging drug payments and drugs at geographically separate locations and the development of 'Drive-In' drug markets. In a separate study of two more or less identical police crackdowns in two areas of Hartford Connecticut, Caulkins, Larson and Rich (1993) found evidence that ease of access to and egress from a drug market made the same police tactics much more effective in one location than in another.

Court-mandated treatment

Court-mandated treatment has been a popular response to drug-related crime for a very long time. However it cannot be regarded as a viable means of reducing the demand for heroin unless it can be shown to be effective in reducing heroin consumption. The research literature on this issue has been reviewed most recently by Hall (1997).

Broadly speaking, Hall's review suggests that, although (for obvious reasons) there have been no randomised trial evaluations of the efficacy of mandated treatment, the available evidence indicates that court-mandated MMT is no less effective than voluntary MMT in reducing heroin use and heroin-related crime. This conclusion appears to hold in both studies comparing normal criminal justice processing with compulsory hospital treatment followed by close community supervision, and studies of the effect of 'legal pressure' (i.e. treatment while on probation or parole). The general consensus among researchers in the area, however, appears to be that, to be effective, court-mandated treatment should include long-term client aftercare and monitoring. A recent review (Belenko 1998) of the research literature on Drug Courts has come to a similar conclusion, although once again the evidence derives from observational rather than experimental studies.

The principal limitation of court-mandated treatment as a means of reducing the demand for heroin is probably its limited reach and expense. Court-mandated treatment for heroin use is generally only viable where a heroin user has been arrested and convicted of a crime for which a sentence of imprisonment is probable or certain. Although it is difficult to obtain estimates, it is likely that only a minority of dependent heroin users at any given time are in this situation. Many of those who eventually find themselves in it may have benefited from treatment at a much earlier point in time. The cost of prosecution, trial, intensive supervision and court monitoring also makes court-mandated treatment far more expensive than voluntary treatment. Drug law enforcement would clearly be of greater value in demand reduction if it could be shown that it prompts heroin users to enter treatment without the need for a court order requiring it.

The long-term effect of street-level drug law enforcement

The supposition that street-level drug law enforcement has a long-term effect is not unreasonable. In the early stages of dependence, heroin users are likely to feel in control of their addiction and to have had relatively few drug-related contacts with police. Unless already heavily involved in criminal activity they are also unlikely to have been imprisoned. For most heroin users this situation changes over just a few years. As access to legitimate sources of income begins to fail many heroin users find themselves having to resort to illegitimate activity to fund their addiction. The longer they are involved in such activity, the greater is their exposure to the risk of arrest, prosecution and imprisonment. Finding the means to 'score' heroin becomes an all-consuming activity. Treatment, for many, provides the only avenue of escape from this pressure.

Chitwood and Chitwood (1981) compared the characteristics of 206 randomly chosen drug users in long-term treatment for drug dependence and 103 randomly chosen patients attending a county emergency room for the treatment of an acute drug-related problem. Bi-variate comparisons showed that those in the long-term treatment program were much more likely to have an arrest record than those attending an emergency room for treatment of acute drug problems. A larger proportion of them had also funded

their purchases of illegal drugs from some form of income-generating property crime. Unfortunately, while these results are suggestive, no multivariate analyses were conducted to see whether contact with police or the justice system discriminated between those in treatment and those not in treatment, when other significant discriminators (age, ethnicity, sex, type of drug use) were held constant.

Chitwood and Morningstar (1985) controlled for differences in the type of drug use by examining the factors discriminating between 95 individuals in treatment for cocaine use and 75 cocaine users, not in treatment recruited through informal contacts. The results showed that those in treatment were more frequently arrested and had longer arrest histories than those not in treatment. They were also more likely to have derived their income from illegal sources. Furthermore, when the level of cocaine use was held constant, the relationship between having an arrest history and being in treatment was even more pronounced. This finding is encouraging because the level of cocaine consumption was found to exert a significant effect on the likelihood of being in treatment. Unfortunately no attempt was made to control for a range of other factors found to exert significant effects on entry into treatment, including prior experience of an overdose and the presence or absence of 'close' friends.

Contrary results were obtained by Carroll and Roundsaville (1992). They compared a sample of several hundred cocaine users in treatment with 101 cocaine users not in treatment recruited through informal contacts. Four variables were employed to tap contact with law enforcement. These were: whether the individual was currently on probation or parole, the number of prior convictions, the total number of months spent in prison and the number of days of illegal activity in the past 30 days. Surprisingly, they found no differences between the two groups in the frequency of cocaine use in the past month, amount of money spent on cocaine in the past month, age of onset of drug abuse, duration of regular cocaine use or duration of longest voluntary abstinence from cocaine. Furthermore, the treatment group was significantly *lower* than the non-treatment group in terms of months spent in prison and the level of involvement in illegal activity.

The largest and best conducted study to date has been a prospective longitudinal study conducted by Schultz, Raipiti, Vlahov and Anthony (1994). They examined the determinants of enrolment into detoxification and MMT among a sample of 1039 injecting drug users with no recent experience of treatment. Subjects were paid for participation in the study and recruited by advertisement and word of mouth. They were interviewed twice. The first 'baseline' interview sought to obtain information on age, sex, race, employment status, marital status and history of arrest and imprisonment. The second, follow-up interview was conducted within 9.5 months of the first interview and sought to obtain information on entry into treatment, entry into detoxification and whether subjects had overdosed or become infected with the HIV virus in the six months following the first interview.

Of the 1039 actively injecting drug users with no recent history of treatment at the baseline interview, 209 reported entry into treatment subsequent to the baseline interview and 144 reported entry into a detoxification program only. Separate logistic regression analyses were conducted to model the decision to enter detoxification and the decision to enter MMT. The factors found to exert independent effects on the decision to enter detoxification were recent overdose, having entered treatment some time in the ten years prior to the baseline interview, a history of arrest and frequency of use. The factors found to exert independent effects on the decision to enter MMT, however, included marital status, gender, duration of use and prior history of treatment but did not include either a history of arrest or imprisonment.

There is very little Australian evidence available on the determinants of entry into MMT. Weatherburn and Lind (1997) found no evidence of any relationship between the number of persons convicted for heroin use and possession in Fairfield Local Court and the number entering the local MMT program at a nearby hospital. Interviews with 247 heroin users entering MMT, however, provided some evidence that drug law enforcement did encourage heroin users into MMT. Thirty per cent of those interviewed on entry into treatment cited 'trouble with police' as their reason for entering treatment. Nearly 70 per cent cited the cost of heroin as the reason for seeking treatment. Because the cost of heroin is at least in part related to drug law enforcement, these findings suggest that both the monetary and non-monetary costs imposed by drug law enforcement play some role in encouraging heroin users into MMT.

Although not strictly a study of the determinants of entry into treatment, an ethnographic study of the factors which affect the decision to give up using heroin is of some relevance here. Bammer and Weekes (1993) conducted in depth interviews with 18 heroin users in Canberra who had all at some stage given up using heroin. Although the desire to keep their relationship intact and concern about health and lifestyle problems figured prominently among the reasons for attempting to give up heroin, several respondents cited concern about trouble with the courts, the cost of funding their heroin dependence, guilt about involvement in crime or the increasing prospect of being imprisoned as important considerations in the decision to give up using heroin. These observations are consistent with those obtained by Weatherburn and Lind cited above.

Nevertheless, overall, evidence on the effects of street-level drug law enforcement on entry into treatment must be described as far from conclusive. It may be that, as with the effects of police crackdowns on drug dealing, the effect of drug law enforcement activity on entry into treatment is context-specific. If drug law enforcement poses little perceived threat to drug users or treatment is in very short supply or the available treatment programs do not attract people with a long history of drug dependence, one would not expect law enforcement to prompt people to seek treatment. On the other hand, because it has historically been much easier to obtain access to MMT in Australia than in the United States, there is some room for optimism that street-level drug law enforcement might exert a more marked effect on entry into treatment by heroin users in Australia than in the United States.

THE POTENTIAL COSTS OF STREET-LEVEL DRUG LAW ENFORCEMENT

We have dwelt mainly on the potential benefits of street-level drug law enforcement but activities carried out under this heading cannot all be regarded as risk-free, particularly when they take the form of a police crackdown. Aggressive street-level drug law enforcement can encourage unsafe injection practices, such as rapid injection of drugs, needle sharing or failure to use precautions such as a swab or tourniquet. It can also encourage corruption and/or systemic violations of civil liberty.

Unsafe injection practices are a matter of public importance because they encourage the spread of infectious diseases such as HIV-AIDS and Hepatitis B and C. If drug law enforcement encouraged these diseases it would conflict with a key national policy objective within the national drug strategy (Williams 1997, p.3). Australia has, by comparison with other countries, relatively low rates of HIV infection among injecting drug users, a fact attributed by most authorities to its comprehensive needle exchange program (Ministerial Council on Drug Strategy 1998, p. 10). Between 50 and 60 per

cent of injecting drug users, however, have been infected with Hepatitis C, with an estimated 13 per cent of uninfected drug users becoming infected with the disease every year (Ministerial Council on Drug Strategy 1998, p. 10). Deaths from heroin overdose have also increased across Australia (Hall, Degenhardt & Lynskey 1999). These findings give cause for concern about the risks associated with street-level drug law enforcement.

The most detailed examination of the effects of street-level drug law enforcement on the health behaviours of heroin users so far conducted in Australia has been that carried out by Maher and her colleagues (Maher, Dixon, Swift & Nguyen 1997; Maher, Dixon, Lynskey & Hall 1998). Maher's research provides compelling evidence that it prompts many heroin users to engage in a variety of defensive tactics designed to protect them from discovery by police but which are inimical to public health. These tactics include the oral and intra-nasal storage of heroin, swallowing heroin to avoid apprehension, needle sharing, using discarded needles found in the street, rapid and careless injection of heroin and the unsafe disposal of injection equipment (Maher et al. 1998, p. 104-110). Although the prevalence of these problems cannot be inferred from the research of Maher and her colleagues, they clearly raise significant issues of concern.

Health risks are not the only potential cost associated with street-level drug law enforcement. Over-zealous policing can generate pressures on officers to subvert or abuse their authority (see Kleiman & Smith 1990; Manning & Redlinger 1978; Skolnick 1975). Maher et al. (1997) maintain that street-level drug law enforcement, as carried out in Cabramatta, has involved repeated violations of civil liberty and at least the appearance if not the reality of corruption. Some of her informants suggested that police had seized illegal drugs and money from them without arresting or charging them or recording the seizures in the required way (Maher et al. 1997, p.30). Others reported having been subjected to illegal strip searches and racial vilification (Maher et al. 1997, p.45). According to Maher et al., these behaviours have only made it harder for police to secure the cooperation of the local community in dealing with drug-related crime.

Given that they involve the exercise of coercive power it would be naïve to expect any law enforcement strategy to be entirely risk-free. At the same time, the research by Maher et al. raises the question of whether it is possible for police and others involved in drug law enforcement policy to manage street-level drug law enforcement in a way which encourages heroin users into treatment but without significantly increasing the threat to public health, civil liberty and police integrity. This is a very difficult question to answer. The Wood Royal Commission (Wood 1997) left no doubt that the NSW Police Service has in the past suffered from widespread corruption and inadequate management. The problems identified by Maher et al. reflect this. What remains unclear is whether those problems have been or could be substantially reduced with adequate management and corruption control measures.

This issue looms largest in the domain of public health. Significant steps have been taken by the NSW Government to reduce police corruption and enhance operational police accountability.[3] But even if street-level drug law enforcement were carried out with the utmost integrity and care there is no guarantee that the public health problems identified by Maher et al. could be avoided. Unsafe injection practices may simply be an unavoidable consequence of street-level drug law enforcement. This makes it all the more important to attempt to quantify the costs and benefits associated with such enforcement. It is with this object in mind that the present study was conducted.

PURPOSE OF THE PRESENT STUDY

The present study had three main purposes. The first was to update earlier work carried out by the Bureau (Dobinson & Ward 1984, 1987; Dobinson & Poletti 1988) and supplement more recent work carried out by Maher et al. (1998) detailing the characteristics of Sydney's heroin users and the nature and extent of contact they have with police, the justice system and methadone treatment. The second was to establish whether street-level drug law enforcement encourages heroin users into MMT. While there are other forms of treatment, MMT was chosen as the focus of interest, firstly, because the vast majority of heroin users who enter treatment choose MMT and, secondly, because MMT has been shown in past research to be more effective than abstinence-based therapies in reducing heroin consumption and heroin-related crime (Hall 1996). The third aim was to gauge the extent to which street-level drug law enforcement encourages heroin users to engage in unsafe injection practices.

METHOD

The research was conducted by means of a face to face survey of heroin users either in methadone clinics, at needle exchange centres or on the street in areas of widespread heroin dealing and use. Details of the survey methodology are presented below but we begin by explaining the questionnaire design.

QUESTIONNAIRE DESIGN

To meet the three aims of the study, the survey instrument included questions covering three broad areas:

- descriptive characteristics of the respondent;

- the respondent's contact with the criminal justice system and experience of methadone treatment; and

- the safety of the respondent's drug-using practices.

The descriptive items included in the questionnaire were age, gender, marital status, ethnic background, age of first heroin use, age of first regular heroin use, usual method of using heroin, average daily expenditure on heroin, main source of income, whether heroin was usually scored on or off the street, and the respondent's assessment of the risk involved in scoring heroin.

Two main strategies were employed to assess whether drug law enforcement exerts any effect on entry into treatment. The first strategy was to see whether individuals who had had some form of direct or indirect contact with police or the criminal justice system were more likely than individuals with no such contact or less contact either (a) to be in MMT, or (b) if not in MMT at the time of the survey, to want MMT. The second strategy was simply to ask respondents who were currently in MMT to rate the importance of various reasons for being in MMT.

The survey instrument included both direct and indirect measures of contact with the police and with the criminal justice system. The direct measures tapped the respondent's own experience, including whether the respondent had ever been arrested or imprisoned, whether the respondent had pending court cases, how often the respondent had been stopped by police in the six months prior to the survey interview and whether the respondent had been caught or interrupted by police while using heroin. The indirect measures related to the experience of the respondent's friends and family but were restricted to whether they had been to prison for drug-related offences.

Many factors apart from contact with the criminal justice system might prompt a heroin user to seek or want treatment. It was therefore important to control for the influence of these factors. However, this requirement posed a problem. There is no general agreement (or even any well developed theory) about which factors influence the decision of heroin users to enter treatment and it is therefore somewhat difficult to identify an appropriate set of controls. However, on the basis of previous research, particularly the study by Shultz et al. (1994), it seemed prudent to control for having overdosed, having previously entered treatment, frequency of heroin use, marital status, gender and duration of heroin use.

It is arguable, however, that other factors might influence the decision to enter treatment. To begin with, if the fact of having overdosed oneself increases the likelihood of entering treatment, the knowledge that a friend has died from an overdose might exert a similar effect; so, too, might the knowledge that one has a drug-related illness or disease. Given the influence which peers and family members are known to have on drug use behaviour one might also expect that heroin users with friends in treatment would be more likely to enter treatment than those who do not have friends in treatment. By the same token, one might expect heroin users with friends or family members who are regular heroin users to find it harder to enter treatment than those without friends or family members who are heroin users. Living with dependent children might also influence users to seek treatment. Questions on all of these factors were included in the questionnaire.

Questions were also included on the respondent's experience of methadone treatment, including whether or not the respondent was in treatment at the time of the survey, the length of the current time in treatment (if relevant), the number of previous times the respondent had been in treatment and the respondent's views on the best and worst things about methadone. For respondents not in methadone treatment at the time of the survey there was a question designed to determine whether they wanted to be in treatment.

To assess whether respondents engaged in unsafe user practices, the questionnaire sought information on the frequency of injecting without a tourniquet, injecting without a swab, discarding syringes quickly and sharing syringes. Respondents were also asked if they usually used in a place where they felt safe from police and, if they had been interrupted by police while using heroin, what actions the police took.

Prior to piloting, the questionnaire went through a number of drafts and was reviewed by other researchers and methadone clinic practitioners. After the piloting there was minor rewording of some questions but no substantial changes to the questionnaire. However, once the survey was underway it became clear that those on methadone, while usually reducing their heroin use, often substituted other illegal drugs. As a result an additional question was included: those on methadone were asked their average daily expenditure on all illegal drugs. This question was included in the survey instrument for only about 60 per cent of respondents.

The final form of the questionnaire can be found in Appendix A. Most questions had pre-coded responses. Six questions (Question 12, 13, 20, 24, 36 and 37) required the respondent to choose a response from a card; for these questions the card is also shown in Appendix A. The question on ethnic background (Question 5) had no pre-coded response set and there were five other questions (Questions 18, 34, 35, 38a and 39) where open-ended responses were possible.

SAMPLING AND SURVEY PROCEDURE

It was clearly not possible to select a random sample of heroin users (in the sense of every heroin user in Sydney having an equal chance of being selected in our sample). Because we wanted to test hypotheses related to being in, or wanting methadone treatment our aim was to obtain approximately equal-sized samples of respondents in each of three methadone treatment groups:

- currently in methadone treatment;

- not currently in methadone treatment but wanting to be;

- not currently in methadone treatment and not wanting to be.

Our aim was also to obtain, as far as possible, reasonable representation of both males and females, from both younger and older age groups, and of different ethnicities.

The survey was conducted in locations where heroin users are likely to be found, that is, at needle exchange centres and methadone clinics. All interviews were conducted in areas of central and south western Sydney where most of Sydney's heroin dealing and use is concentrated. Ethics Committee approval was obtained from the Central and South Western Area Health Services prior to commencement of the study and these Health Services co-operated with the study in allowing interviews to be conducted at their needle exchange centres and methadone clinics. Two private methadone clinics also allowed our interviewers access to their clinics to conduct interviews. In order to achieve representation from different ethnic groups, the survey was conducted at a number of different needle exchange centres and methadone clinics, located in areas with populations of different ethnic mix.

Some interviews were conducted in conjunction with a mobile needle exchange service van. When interviewers 'did the rounds' with the mobile van they conducted interviews on the street and, on one occasion, in a brothel. Some interviews were also conducted on the street in Cabramatta (a Sydney suburb with a high proportion of residents of South-East Asian origin and a major drug-dealing centre).

Generally, respondents were approached either inside the methadone clinics and needle exchange centres or immediately on leaving these premises. Each respondent was paid $10 for the interview.

Piloting of the questionnaire took place in August 1998. The data collection period was approximately six months. The first interview was conducted on 11 September 1998 and the last on 31 March 1999. Two interviewers carried out most of the interviews. Another two interviewers each conducted a small number of interviews as part of entry procedures to methadone treatment at methadone clinics.

It was possible for the same person to be interviewed on more than one occasion. As a means of checking for duplicate records, first name and date of birth were recorded on a tear-off strip on the first page of the questionnaire.

DATA EDITING AND ANALYSIS

The first step in preparing the data for analysis was to check for any duplicate records. As a result of checking matches and near-matches on first name and date of birth, nine records were identified as being re-interviews of the same person. In each case, except one, the first interview was retained in the data set and the second interview's record was deleted. In one case the second interview was used because the respondent was in methadone treatment at the time of the second interview and we wanted to boost the numbers of respondents who were in treatment.

Records for three other interviews were deleted, one because the interview was not completed, and two others on the interviewer's advice that the data were inconsistent and unreliable: one where the respondent kept nodding off during the interview and one where the interview was very rushed. The final data set consisted of records for 511 interviews.

Coding frames were developed for the open-ended responses to Question 18 (what police did after interrupting heroin use) and to Questions 34 and 35 (the best and worst things about methadone) and the data were coded.

Logical checks of the data were then conducted, for example, checking that the age at which respondents first used heroin was not greater than the age at which they first used heroin regularly. Where any inconsistencies were found, data were corrected if possible, or, if not, set as missing values.

There were two main methods of analysis. Chi-square tests were used to test for bivariate associations between variables. Logistic regression was used for testing hypotheses when it was necessary to control for the effects of other variables. To test the effect of drug law enforcement measures, the approach used was to first fit a base model containing an appropriate set of control variables, then to fit another model for each drug law enforcement measure, each time including the specified measure with the set of base model control variables.

All variables included in the logistic regression models were recoded as dichotomous variables (taking the values 1 or 0 only). Variables with many values (age, for example) were first grouped and then recoded as a number of dichotomous comparisons. In the case of age, for example, the age groups were 15-19, 20-24, 25-29 and 30 or older; these four groups were recoded as three dichotomous comparisons:

- age 15-19 v. age 30 or older

- age 20-24 v. age 30 or older

- age 25-29 v. age 30 or older.

As potential control variables we used the full set of descriptive data included in the questionnaire (whether purposely included as a control variable or as a descriptive measure). There were no rigid rules applied in selecting an appropriate base model of control variables. The general strategy, however, was as follows. First a model was fitted with all available control variables included as predictors. The next step was to drop any variable which had a p-value higher than about 0.2 and which had no significant bivariate association with the response variable. Then variables which had significant bivariate associations with the response variable but which were not significant in the presence of other control variables were also dropped. At each stage the deviance of the model was examined. If dropping a variable resulted in a poorer fit, the variable was re-instated in the model. This process was continued until a satisfactory base model was determined. Often, excluding variables resulted in an increase in the number of observations which could be included in the analysis (because of missing data). Where this was the case and there was little change in the fit of the model (as assessed by the deviance) the strategy was to select a base model with fewer variables and more observations.

RESULTS

The results of the study are presented in three sections. The first details the characteristics of heroin users and the extent and nature of their contact with police and the justice system. The second presents evidence bearing on the effect of contact with police and the justice system on entry into treatment. The third presents evidence bearing on the effect of street-level drug law enforcement on the health risks taken by heroin users.

PROFILE OF RESPONDENTS

Age and gender and social milieu of respondents

Table 1, below, provides an age by gender breakdown of respondents to the survey. The majority of respondents in each age category were clearly male, except in the youngest age group (15-19 yrs), where a slight preponderance of women existed.

Table 1: Age and gender of respondents

Age group	Males		Females		Total	
	Number	%	Number	%	Number	%
15-19	42	46.7	48	53.3	90	100.0
20-24	92	59.0	64	41.0	156	100.0
25-29	79	65.8	41	34.2	120	100.0
30-34	45	71.4	18	28.6	63	100.0
35-39	31	64.6	17	35.4	48	100.0
40+	23	69.7	10	30.3	33	100.0
Total	312	61.2	198	38.8	510	100.0

Note: One respondent of unknown gender (in the 15-19 age group) is missing from this table.

It is interesting to compare the age distribution in Table 1 with the age distribution of heroin users interviewed by Bureau staff at a needle exchange centre in Darlinghurst (a central area of Sydney) in 1987 (Dobinson & Poletti 1988, p.27). On that occasion less than 5 per cent of the respondents were aged less than 20, compared with 18 per cent in the current survey.

Most respondents (74.5%) in the present survey were single and did not have any children living at home with them (80.8%). More than a quarter (26.4%) had family members who were regular heroin users and four-fifths (80.4%) had close friends who were regular heroin users, although a comparable proportion (83.7%) stated that they also had close friends who were not regular heroin users.

Age of first and regular use

The average age at which respondents in the current study first used heroin was 18.7 years. The average age at which regular use commenced was 20.4 years. There were, however, some notable differences in the age of onset of heroin use among different

groups of respondents in the current study. The average age of onset for females (18.1 years) was lower than that for males (19.1 years). The average age of onset of heroin use also varied with the ethnicity of the respondents, being 17.8 years for Asians, 18.4 years for Caucasians, 20.4 years for those of Middle Eastern background, 19.6 years for Aboriginal people and 21.1 years for Pacific Islanders.

The average ages of onset of first use and regular heroin use are very similar in the present study to the average ages of first and regular use obtained in the Dobinson and Poletti study (Dobinson & Poletti 1988, p.32, first use: 18.4 years, regular use: 19.5 years). This suggests that the contrast between the present study and Dobinson and Poletti's study in the proportion of younger heroin users (noted in connection with Table 1, above) is likely to be the result of extraneous factors (e.g. differences in study location) rather than a change in the average age of onset of heroin use.

Figure 1: Age distribution for first and regular use

Percentage of respondents
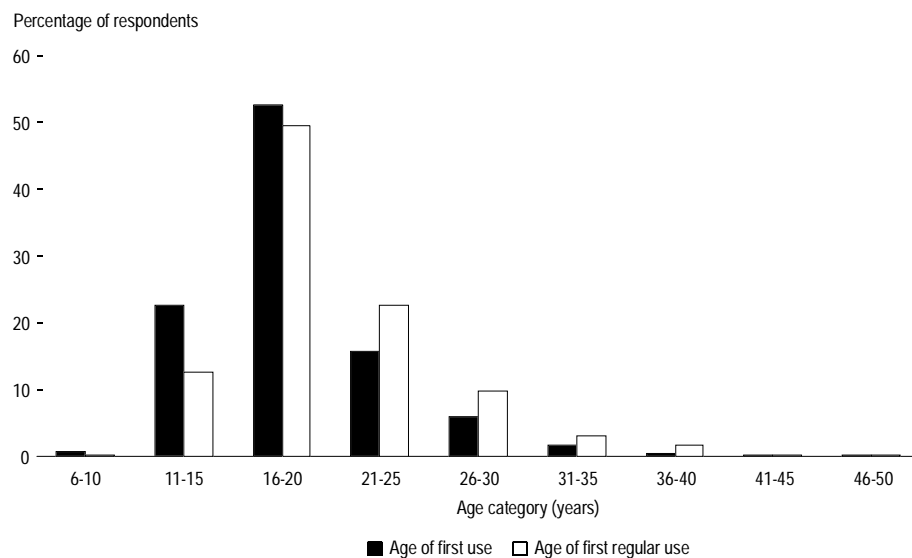
Figure 1 shows the age distribution of first and regular use. There is clearly wide variation among respondents in relation to the age of first use and the age of regular use. Nevertheless, the overlap between the two distributions in Figure 1 indicates the short time span between first and regular use for many of those who go on to regular use. This point is highlighted in Table 2, which shows the distribution of the difference between the ages of regular heroin use and first heroin use among the current respondents.

Table 2: Distribution of the difference between age of regular heroin use and age of first heroin use

Time between first and regular use	No.	%
Less than 1 year	211	41.3
1 year	138	27.0
2 years	56	11.0
3 years	30	5.9
4 years	19	3.7
5 or more years	57	11.2

It is obvious that the vast majority of heroin users in the sample commenced regular heroin use within one to two years of first using heroin. The distribution is highly skewed, however, with more than 10 per cent of heroin users not becoming regular heroin users until five or more years after first use.

Health

Nearly half (43.8%) of the respondents in the survey had overdosed at some point in the past. As Table 3 indicates, this figure increased with the number of years respondents had spent regularly using heroin ($X^2 = 47.2$, 5 d.f., $p < 0.001$). The relationship between years spent regularly using heroin and the likelihood of overdose is quite strong.[4] Those whose regular heroin using career exceeded 16 years, for example, were more than twice as likely to have overdosed than those who had been regularly using heroin for less than a year.

Table 3: Risk of heroin overdose by years of regular heroin use

| | Ever overdosed on heroin? | | | | | |
| | Yes | | No | | Total | |
Years of regular use	No.	%	No.	%	No.	%
Less than 1	9	25.7	26	74.3	35	100.0
1-2	41	30.6	93	69.4	134	100.0
3-5	54	36.2	95	63.8	149	100.0
6-10	58	58.0	42	42.0	100	100.0
11-15	35	72.9	13	27.1	48	100.0
16+	25	61.0	16	39.0	41	100.0

Note: Missing data for 4 respondents.

About half (46.5%) of the respondents believed that they had a drug-related health problem but the percentage of respondents who believed they had a drug-related health problem tends to increase with the number of years spent regularly using heroin ($X^2 = 33.8$, 10 d.f., $p < 0.001$). As Table 4 indicates, respondents who had regularly used heroin for more than five years were nearly twice as likely to believe they had a drug-related health problem than respondents who had been regularly using heroin for less than one year.

Table 4: Drug-related health problems by years of regular heroin use

| | Drug-related health problems? | | | | | |
| | Yes | | No | | Don't know | |
Years of regular use	No.	%	No.	%	No.	%
Less than 1	9	25.7	24	68.6	2	5.7
1-2	50	38.2	66	50.4	15	11.5
3-5	68	45.9	58	39.2	22	14.9
6-10	52	52.0	44	44.0	4	4.0
11-15	31	64.6	15	31.3	2	4.2
16+	24	58.5	17	41.5	0	0.0

Note: Missing data for 8 respondents.

Level of participation in MMT

At the time of interview about half (50.5%) had been in MMT before but the distribution of the number of times respondents had previously been in MMT was highly skewed, with 11.7 per cent having been in MMT three or more times before. The prior MMT participation rate is somewhat higher than the corresponding figure (38.5%) obtained by Dobinson and Poletti (1988, p. 39).

In the current study 40.4 per cent of male and 36.9 per cent of female respondents were in MMT at the time of interview. The likelihood of currently being in MMT varied significantly by both age and ethnicity. Table 5, below, shows the proportion of respondents in MMT by age.

Table 5: Current MMT status by age of respondent

Age group	In MMT		Not in MMT	
	No.	%	No.	%
15-19	24	26.4	67	73.6
20-24	57	36.5	99	63.5
25-29	48	40.0	72	60.0
30-34	25	39.7	38	60.3
35-39	28	58.3	20	41.7
40+	17	51.5	16	48.5

Older respondents were significantly more likely to be in MMT than younger respondents ($X^2 = 16.3$, 5 d.f., $p = 0.006$). Table 6 shows the proportion of respondents in MMT by ethnicity.

Table 6: Current MMT status by ethnicity of respondent

Ethnicity	In MMT		Not in MMT	
	No.	%	No.	%
Asian	18	17.8	83	82.2
Caucasian	140	51.7	131	48.3
Middle Eastern	21	48.8	22	51.2
Aboriginal	14	19.2	59	80.8
Islander	2	22.2	7	77.8
Other	4	30.8	9	69.2

Note: Information on ethnicity was missing for 1 respondent.

There were significant variations in the proportions of different ethnic groups in MMT ($X^2 = 52.5$, 5 d.f., $p < 0.001$), with persons of Asian, Aboriginal and Islander descent being much less likely to be in MMT than Caucasians or persons of Middle Eastern background.

Expenditure on drugs and MMT

The average daily expenditure on heroin for respondents not currently in MMT was $139.7. For those who were currently in MMT the average daily expenditure on *illegal*

drugs ($59.1) was substantially lower than their daily expenditure on *heroin* before entering MMT ($196.1). However the difference between expenditure on heroin before entering MMT and expenditure on illegal drugs after entering MMT varied considerably across the subsample of subjects in MMT. Figure 2, below, shows the distribution of the difference in question.

Figure 2: Effect of MMT on drug expenditure
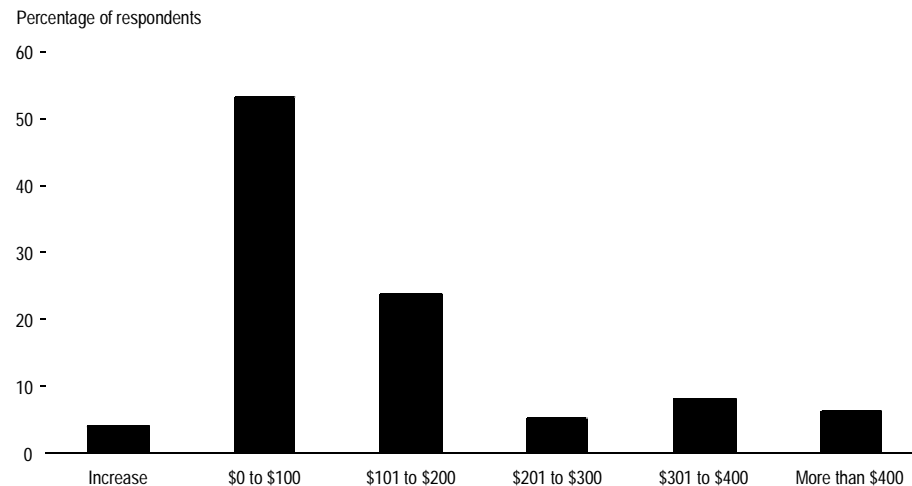
The first thing to note about Figure 2 is the fact that, for four per cent of respondents, entry into MMT was actually accompanied by an *increase* in daily expenditure on illegal drugs. Since entry into MMT is highly unlikely to increase expenditure on heroin, this finding suggests that daily expenditure on illegal drugs other than heroin actually increased for some respondents following entry into MMT. This conclusion is reinforced by comments from several respondents that they continued to use cocaine upon entering MMT. (Note that MMT does not directly affect cocaine use.)

The second point to note is the wide variation among respondents who decreased their expenditure on illegal drugs in the size of that decrease. The mean difference between daily expenditure on heroin before entering MMT and daily expenditure on illegal drugs following entry into MMT is $137.0. Inspection of Figure 2, however, shows that in 14 per cent of cases the difference in question exceeded $300 and in six per cent of cases the difference exceeded $400. Some of the variation may be because the benefits of MMT take some time to occur and are therefore likely to be larger for people who have been in MMT for some time than for people who have just entered MMT. Indeed, the data show that those who had been in MMT more than six months were more likely than those who had been in MMT a shorter time, to have a larger decrease in expenditure. For example, there was a decrease in expenditure of more than $300 for 26 per cent of those who had been in treatment more than six months and for only 10 per cent of those who had been in treatment for a shorter time.

For those *not* in MMT, there were no significant differences by gender in daily expenditure on heroin. Table 7, however, shows there were significant differences in daily expenditure on heroin amongst different ethnic groups *not* in MMT ($X^2 = 31.6$, 6 d.f., $p < 0.001$). Generally speaking Aboriginal respondents are most likely to be found in the highest expenditure category, Middle Eastern respondents in the lowest expenditure category, with Asian and Caucasian respondents in between.

Table 7: Daily expenditure on heroin by ethnicity (for respondents not in MMT)

Average daily expenditure on heroin	Ethnicity							
	Asian		Caucasian		Middle Eastern		Aboriginal	
	No.	%	No.	%	No.	%	No.	%
$50 or less	14	16.9	42	32.3	10	45.5	3	5.2
$51 - $100	34	41.0	35	26.9	7	31.8	16	27.6
> $100	35	42.2	53	40.8	5	22.7	39	67.2
Total	83	100.0	130	100.0	22	100.0	58	100.0

Note: Respondents of other ethnic backgrounds are excluded from this table because there were too few cases to include in the comparison.

While a larger proportion of Caucasian than Asian heroin users (not in MMT) are in the lowest category of expenditure on heroin, separate computations reveal that the average daily expenditure on heroin among Caucasians ($128.8) was slightly higher than that among Asians ($121.7). This is because there was a larger proportion of Caucasians than Asians spending very large daily sums of money (e.g. > $250 per day) on heroin. The same computations reveal that, as indicated in Table 7, Middle Eastern respondents reported spending the least (mean expenditure = $75.8 per day) while Aboriginal respondents reported spending the most (mean expenditure = $217.2 per day).

Expenditure on heroin also tended to be higher among injecting users than among non-injecting users ($X^2 = 6.4$, 2 d. f., $p = 0.040$; 47 per cent of injectors spent more than $100 per day compared with 22 per cent of non-injectors).

Attitudes toward MMT

A substantial proportion of respondents (39.3%) not in MMT said that they would definitely or probably start MMT 'tomorrow' if they could. Amongst those who said this, 56.3 per cent said that the waiting list (to get on MMT) was stopping them. Asian and Aboriginal respondents (not in MMT) were more likely than Caucasian or Middle Eastern respondents (not in MMT) to say that they would 'definitely' or 'probably' start MMT if they could although the differences were not statistically significant.[5]

All respondents were asked to state the best and the worst things about MMT in their opinion. The question was open-ended and the answers post-coded into the most natural and frequently occurring categories. Because of the open-ended nature of the question, respondents' comments sometimes fell into several categories. Figures 3 and 4 below show, respectively, the distribution of responses across these categories for the best (Figure 3) and worst (Figure 4) things about MMT.

For most respondents the best thing about MMT is clearly that it stabilises their life. Many of the respondents placed in this category commented that the effect of MMT was that it stopped them 'hanging out', helped them get their life 'together' or made it possible to preserve their relationships, either with their partner or with their children. Perhaps the most troubling feature of Figure 3 is the fact that nearly 10 per cent of respondents regard MMT not as an alternative to heroin use but as a 'backup' to its use (i.e. something to 'lean on' when heroin was either unavailable or unaffordable). This suggests that MMT may sometimes prolong the period of involvement in the heroin market rather than abbreviating it.

Figure 3: Best things about MMT

Percentage of respondents
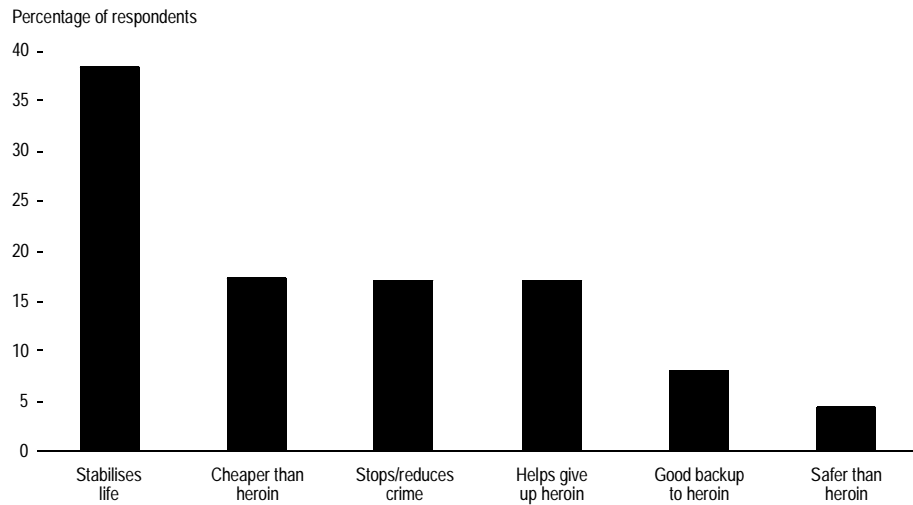
At first glance Figure 4 also has some curious features. One noteworthy feature of Figure 4 is the high percentage who believe that methadone exerts deleterious effects on bones and teeth.[6] Given that heroin is clearly an addictive drug it may also seem somewhat surprising to observe the high level of concern among respondents with the addictive qualities of methadone. Many, however, are probably anxious to escape from the constraints heroin imposes on their lifestyle and would therefore be repelled, to some extent, by a drug treatment which simply replaces one form of addiction with another, particularly when the constraints on access to MMT are more severe in many ways than the constraints on access to heroin. Asian respondents, in particular, appeared to dislike the addictive quality of methadone, with some 43 per cent citing addiction as one its worst features. Inspection of Figure 4 shows that this is nearly double the overall percentage citing the addictive qualities of heroin as its worst feature.

Figure 4: Worst things about MMT

Percentage of respondents
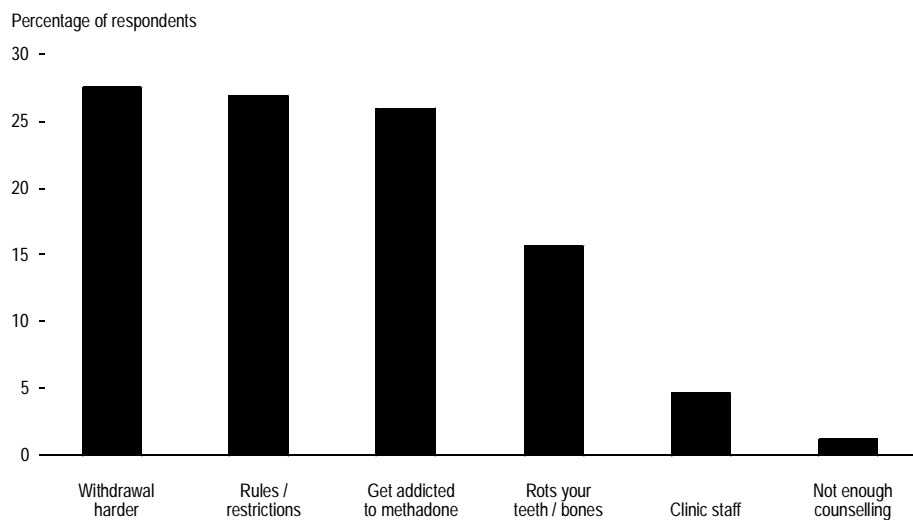
Figure 5: Main source of income to purchase heroin

Percentage of respondents
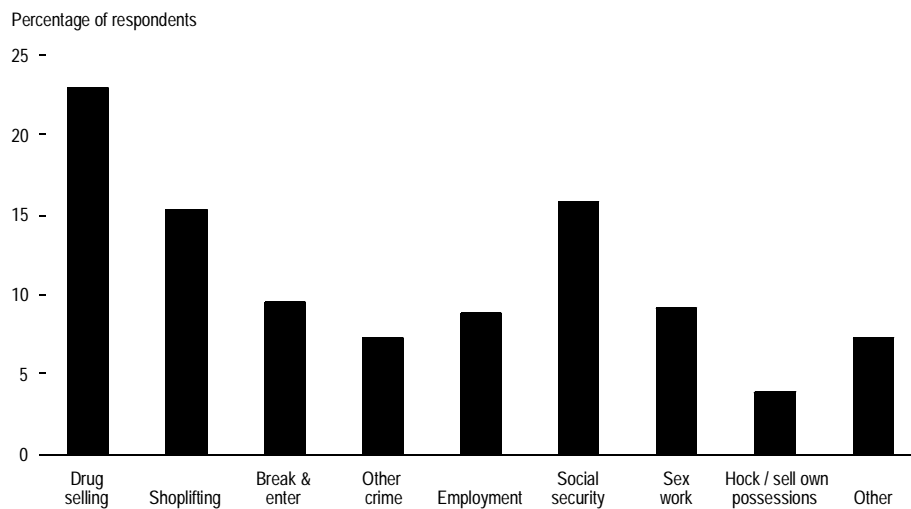
Main source of income to purchase heroin

Figure 5 shows the main source of income used to purchase heroin. As might be expected, a high proportion of respondents are involved in some form of illegal activity to raise money to purchase heroin, with involvement in drug sales, shoplifting and break and enter being fairly common. The true level of involvement in crime is probably higher than suggested in Figure 5, if only because many heroin users had heroin expenditure levels which could not be sustained solely on a social security income.

The level of self-reported involvement in crime varied by both gender and ethnicity. Table 8, below, shows the relationship between gender and the legal status of respondents' main sources of income (with social security, employment, sex work, hocking or selling possessions treated as legal sources and drug sales, shoplifting, break and enter, armed robbery and other property crime treated as illegal sources).

Table 8: Legal status of main income source by gender of respondent

	Main source illegal		Main source legal	
Gender	*No.*	*%*	*No.*	*%*
Male	185	65.1	99	34.9
Female	92	50.0	92	50.0
Total	277	59.2	191	40.8

Note: Missing data for 43 respondents.

The main source of income used to purchase heroin is more likely to be illegal for males than for females (X^2 = 10.6, 1 d.f., p = 0.001), although a majority of all respondents clearly rely on some form of crime as the main source of income to fund their addiction. These findings are broadly similar to those obtained by Maher et al. (1998, pp. 55-59) although precise comparisons are difficult because of differences in question wording.

Table 9 shows the legal status of the main source of income used to purchase heroin for different ethnic groups. There are significantly higher levels of involvement in crime

among Asian and Aboriginal respondents in the sample than among Caucasian and Middle Eastern respondents ($X^2 = 32.6$, 4 d.f., $p < 0.001$).

Table 9: Legal status of main income source by ethnicity of respondent

Ethnicity	Main source illegal		Main source legal	
	No.	%	No.	%
Asian	76	79.2	20	20.8
Caucasian	130	51.4	123	48.6
Middle Eastern	17	41.5	24	58.5
Aboriginal	44	73.3	16	26.7
Other	11	61.1	7	38.9

Note: Missing data for 43 respondents.

Contact with police

Figure 6 shows the frequency with which respondents in the sample had been stopped by police in the last six months for a drug-related offence.

Respondents appear to fall into two fairly distinct groups: those who have not been stopped at all and those (representing the majority) who appear to have been quite frequently stopped. There were no significant differences by ethnicity or gender in the likelihood of having been stopped at least once by police in the last six months for a drug-related offence. As is evident from Table 10, however, respondents aged between 15 and 19 years were more likely to have been stopped than older respondents ($X^2 = 17.2$, 5 d.f., $p = 0.004$).

Figure 6: Frequency of stopping by police in last 6 months
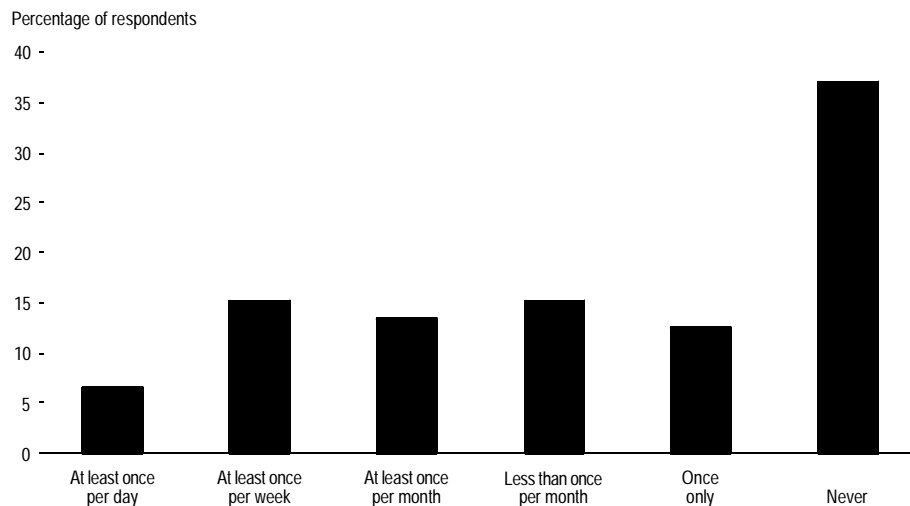
Table 10: Whether stopped by police in last six months, by age of respondent

| | Respondent stopped? | | | |
| | Yes | | No | |
Age group	No.	%	No.	%
15-19	69	75.8	22	24.2
20-24	97	62.2	59	37.8
25-29	80	67.8	38	32.2
30-34	35	55.6	28	44.4
35-39	21	43.8	27	56.3
40+	19	57.6	14	42.4
Total	321	63.1	188	36.9

Note: Missing data for 2 respondents.

A surprisingly high proportion (71%) of respondents had been arrested for a drug-related offence. Males were more likely than females to have been arrested ($X^2 = 10.2$, 1 d.f., $p = 0.001$) with 76.3 per cent of males and 63.1 per cent of females having been arrested.

Table 11: Whether arrested by daily expenditure on heroin

| | Ever arrested? | | | |
| | Yes | | No | |
Average daily expenditure on heroin	No.	%	No.	%
$50 or less	52	55.3	42	44.7
$51 - $100	114	71.3	46	28.8
> $100	194	77.0	58	23.0

Note: Missing data for 5 respondents.

Table 11 shows that the greater a respondent's daily expenditure on heroin, the more likely was the respondent to have been arrested ($X^2 = 15.7$, 2 d.f., $p = 0.001$). The proportion of respondents arrested ranged from 55 per cent for those spending at most $50 per day on heroin to 77 per cent for those spending more than $100 per day. There was also a significant and strong relation ship between time spent regularly using heroin and the likelihood of ever having been arrested, as can be seen from Table 12 ($X^2 = 44.8$, 5 d.f., $p < 0.001$). The longer a respondent had been using heroin the more likely was the respondent to have been arrested.

Table 12: Whether arrested by years of regular heroin use

| | Ever arrested? | | | |
| | Yes | | No | |
Years of regular use	No.	%	No.	%
0	17	48.6	18	51.4
1-2	74	55.2	60	44.8
3-5	111	74.5	38	25.5
6-10	84	84.0	16	16.0
11-15	42	87.5	6	12.5
16+	35	85.4	6	14.6

Note: Missing data for 4 respondents.

The high levels of contact between respondents and police evidenced in relation to stopping and arrest are reflected in the proportion of respondents who had at some stage been caught or interrupted by police when using heroin. This proportion was not significantly related to age, gender or ethnicity but, as Table 13 suggests, it was significantly related to whether or not the respondent usually used heroin in a place where they felt safe from police (X^2 = 8.1, 1 d.f., p = 0.004).

Table 13: Whether interrupted by police by usual location of heroin use

| | Interrupted? | | | | | |
| | Yes | | No | | Total | |
Use where safe from police?	No.	%	No.	%	No.	%
Yes	153	35.9	273	64.1	426	100.0
No	39	53.4	34	46.6	73	100.0
Total	192	38.5	307	61.5	499	100.0

Note: Missing data for 12 respondents.

Inspection of the row totals in Table 13 reveals that the vast majority of respondents (85%) used heroin in a place where they felt safe from police. It is not surprising, therefore, that the majority of respondents overall (62%) had not been interrupted by police. What is more noteworthy, is the fact that more than fifty per cent of respondents who usually used heroin in a place where they did *not* feel safe from police, *had* been interrupted or caught by police using heroin.

Respondents who said they had been interrupted by police were provided with an open-ended question inviting them to say what had happened. Their responses were subsequently post-coded into the most natural and frequently occurring categories. Because of the open-ended nature of the question, respondents' comments sometimes fell into several categories. The pattern of response is shown below in Figure 7 (based on the 192 respondents who had been interrupted).

Figure 7: Police action against respondents caught using heroin

Percentage of respondents
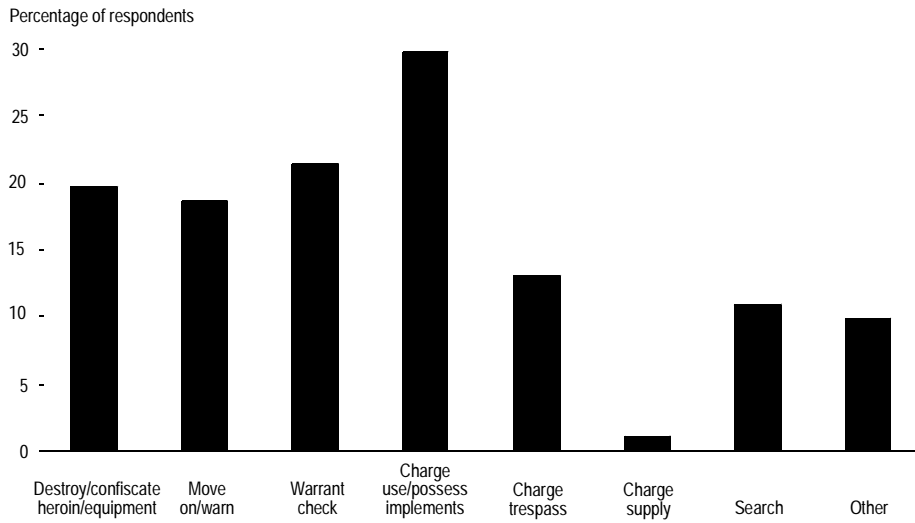
The most common responses were to charge the person interrupted with using or possessing heroin, to check for outstanding arrest warrants and/or to destroy or confiscate a person's heroin or injection equipment. Confiscating the syringe and squirting out the heroin was more commonly reported than destroying the injection equipment. Although not shown in Figure 7 because of their low frequency, it should be noted that several respondents also reported that police had physically assaulted or verbally abused them.

Figure 8 shows respondents' perceptions of the risk associated with scoring heroin. There was no significant relationship between responses to this question and age, gender or ethnicity.

Most respondents clearly regard scoring heroin as very or fairly risky. Nearly 60 per cent of respondents fall into one of these two categories. It might be expected that the perceived risk associated with scoring heroin would be affected by whether or not respondents usually score 'on' or 'off' the street. Table 14 confirms this expectation.

Figure 8: Perceived risk associated with scoring heroin

Percentage of respondents
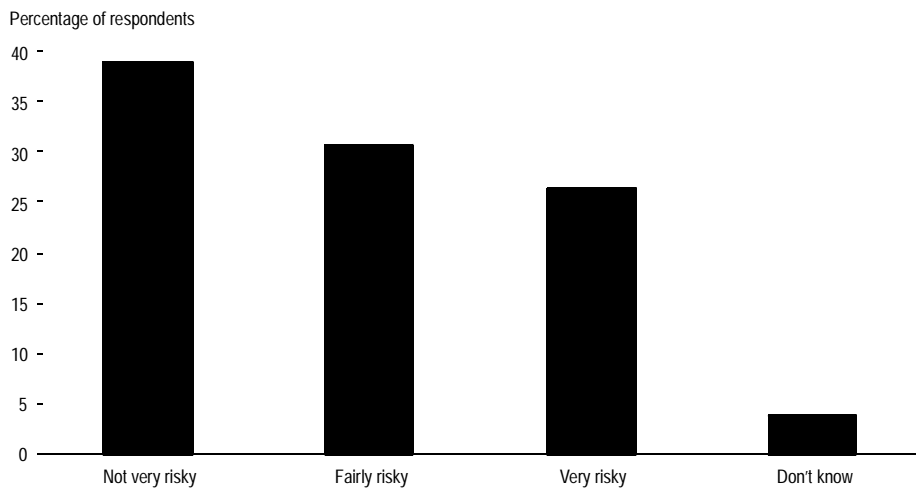
Table 14: Perceived risk of scoring heroin by usual scoring location

| | Perceived risk of scoring heroin | | | | | | | |
| | Not very risky | | Fairly risky | | Very risky | | Don't know | |
Location	No.	%	No.	%	No.	%	No.	%
On street	61	28.5	66	30.8	78	36.4	9	4.2
Off street	134	47.0	85	29.8	56	19.6	10	3.5

Note: Missing data for 12 respondents.

Respondents who obtained their heroin on the street were significantly more likely to regard scoring heroin as very risky than respondents who obtained their heroin off the street (X^2 = 23.8, 3 d.f., $p < 0.001$).

CONTACT WITH THE JUSTICE SYSTEM

Twenty-five per cent of respondents said they had court cases pending for drug offences at the time of interview. The proportion of respondents with court cases pending for drug offences was not significantly related to age, gender or ethnicity. Not surprisingly, however, it was related to the main source of income for respondents. As indicated in Table 15, below, respondents whose main source of income was illegal were significantly more likely to have a court case pending than respondents whose main source of income was legal (X^2 = 28.1, 1 d.f., $p < 0.001$).

Table 15: Pending court case status by main source of income

| | Court case pending for drug-related offence? | | | |
| | Yes | | No | |
Main source of income	No.	%	No.	%
Illegal	93	33.6	184	66.4
Legal	23	12.0	168	88.0

Note: Missing data for 43 respondents.

Forty per cent of respondents had also previously been imprisoned for a drug-related offence, although again this proportion varied with gender, age and ethnicity. A significantly smaller proportion of women (34.5%) than men (43.6%) had been previously imprisoned for a drug-related offence (X^2 = 4.1, 1 d.f., $p = 0.042$).

Table 16 shows the relationship between age and the proportion of respondents previously imprisoned for a drug-related offence. A significantly larger proportion of older respondents had previously been imprisoned (X^2 = 18.6, 5 d.f., $p = 0.002$). The percentage of those imprisoned in the 40+ age group is more than double that in the age group 15-19 years.

Table 16: Whether imprisoned by age group

| | Ever imprisoned? | | | |
| | Yes | | No | |
Age group	No.	%	No.	%
15-19	26	28.6	65	71.4
20-24	52	33.3	104	66.7
25-29	55	46.2	64	53.8
30-34	28	44.4	35	55.6
35-39	22	45.8	26	54.2
40+	21	63.6	12	36.4

Note: Missing data for 1 respondent.

Table 17 shows the relationship between ethnicity and imprisonment. Larger proportions of Asian and Aboriginal respondents, than of Caucasian and Middle Eastern respondents, had been imprisoned ($X^2 = 14.4$, 4 d.f., $p = 0.006$).

Table 17: Whether imprisoned by ethnicity

| | Ever imprisoned? | | | |
| | Yes | | No | |
Ethnicity	No.	%	No.	%
Asian	51	50.5	50	49.5
Caucasian	94	34.8	176	65.2
Middle Eastern	13	30.2	30	69.8
Aboriginal	38	52.1	35	47.9
Other	7	31.8	15	68.2

Note: Missing data for 2 respondents.

Daily expenditure on heroin was strongly related to imprisonment ($X^2 = 19.1$, 2 d.f., $p = 0.001$). Table 18 shows that the greater a respondent's expenditure on heroin, the greater was the likelihood of the respondent having been to prison.[8]

Table 18: Whether imprisoned by daily expenditure on heroin

| | Ever imprisoned? | | | |
| | Yes | | No | |
Average daily expenditure on heroin	No.	%	No.	%
$50 or less	22	23.4	72	76.6
$51 - $100	57	35.6	103	64.4
> $100	121	48.2	130	51.8

Note: Missing data for 6 respondents.

Most (82.8%) had friends who had been to prison for a drug-related offence and nearly a quarter (22.7%) had family members who had been to prison for a drug-related offence.

Once again, there was a significant and strong relationship between the number of years spent regularly using heroin and the likelihood of ever having been imprisoned (X^2 = 79.8, 5 d.f., p < 0.001). The relationship is shown in Table 19 below.

Table 19: Whether imprisoned by years of regular heroin use

| | Ever imprisoned? | | | |
| | Yes | | No | |
Years of regular use	*No.*	*%*	*No.*	*%*
0	8	22.9	27	77.1
1-2	27	20.1	107	79.9
3-5	49	33.1	99	66.9
6-10	53	53.0	47	47.0
11-15	37	77.1	11	22.9
16+	29	70.7	12	29.3

Note: Missing data for 5 respondents.

THE EFFECT OF DRUG LAW ENFORCEMENT ON ENTRY TO METHADONE TREATMENT

In this section we examine whether the data support the hypothesis that street-level drug law enforcement encourages heroin users into methadone treatment. We start by examining the reasons for entering MMT given by respondents already in treatment. Then we test whether there is any association of the drug law enforcement measures with either wanting treatment or being in treatment. We test first for any bivariate associations, then use logistic regression models to test for associations in the presence of control variables.

Reasons for entering MMT

Of the 511 respondents, 199 (39%) were in MMT at the time of their interview. These respondents were asked to rate the importance of each of the following four reasons when they decided to start methadone treatment: (1) to reduce involvement in crime, (2) to avoid more trouble with police/courts, (3) to spend less money on heroin, and (4) to keep relationship/family together.

Table 20 shows the respondents' ratings. Keeping a relationship or family together is clearly the reason most frequently endorsed as 'very important' in shaping the decision to enter treatment. However more than 40 per cent of respondents rated avoiding more trouble with police/courts as very important and more than 60 per cent rated this reason for entering MMT as important or very important. There were similar findings for reducing involvement in crime.

Drug law enforcement activity therefore appears to be an important factor in people's decision to enter MMT. This result is consistent wih our earlier finding that stopping or reducing involvement in crime was commonly mentioned by respondents as one of the best things about methadone.

Table 20: Importance of reasons for entering MMT

Importance	Reduce involvement in crime		Avoid more trouble with police/courts		Spend less money on heroin		Keep relationship / family together	
	No.	%	No.	%	No.	%	No.	%
Very important	90	45.5	82	41.4	137	69.2	153	76.9
Important	30	15.2	42	21.2	41	20.7	22	11.1
Not very important	33	16.7	31	15.7	11	5.6	16	8.0
Not applicable	45	22.7	43	21.7	9	4.5	8	4.0
Total	198	100.0	198	100.0	198	100.0	199	100.0

Note: One respondent chose not to answer the questions relating to the first three reasons listed.

Bivariate associations with drug law enforcement measures

We now examine whether there is any relationship between the measures of drug law enforcement and either wanting MMT or being currently in MMT. The drug law enforcement measures included in the survey were whether the respondent had ever been arrested or imprisoned, whether the respondent had a court case pending for a drug-related offence, whether he or she had been caught or interrupted by police while using heroin, whether a family member or friend had been to prison for a drug-related offence, and how often the respondent had been stopped by police in the last six months for a drug-related offence. This last measure is only used in testing for a relationship with wanting MMT because police activity in the reference period (the six months prior to the survey) might not have preceded entry to MMT.

Want MMT

The 312 respondents who were not in MMT at the time of the survey were asked 'if you could start methadone tomorrow would you?' As noted earlier, of the 308 respondents who answered this question, 39 per cent said that they would definitely or probably start methadone. If drug law enforcement activity encourages heroin users into MMT we would expect the measures of drug law enforcement to be predictors of wanting to go into MMT. Only one of the drug law enforcement variables had a significant bivariate relationship with wanting MMT and that was imprisonment. The relationship is shown in Table 21 ($X^2 = 5.3$, 1 d.f., $p = 0.021$).

Table 21: Want MMT by whether imprisoned

Ever imprisoned?	Definitely or probably start methadone tomorrow		Definitely not or probably not start methadone tomorrow		Total	
	No.	%	No.	%	No.	%
Yes	65	46.4	75	53.6	140	100.0
No	56	33.5	111	66.5	167	100.0

Note: Missing data for 5 respondents.

Of those ever imprisoned for a drug-related offence, 46 per cent wanted to start methadone whereas for those never imprisoned only 34 per cent wanted to start methadone. This finding is consistent with law enforcement encouraging heroin users into methadone treatment.

Currently in MMT

At the time of the survey there were 199 respondents who were currently in MMT and 312 who were not. Only two of the drug law enforcement variables had a significant bivariate association with whether or not the respondent was currently in MMT. The two variables were whether ever imprisoned ($X^2 = 11.4$, 1 d.f., $p = 0.001$) and whether a family member had been imprisoned ($X^2 = 5.4$, 1 d.f., $p = 0.020$). The relationships for imprisonment and family member imprisonment are shown in Tables 22 and 23.

Table 22: Current MMT status by whether imprisoned

	In MMT		Not in MMT		Total	
Ever imprisoned?	No.	%	No.	%	No.	%
Yes	61	29.9	143	70.1	204	100.0
No	137	44.8	169	55.2	306	100.0

Note: Information on imprisonment was missing for 1 respondent.

Forty per cent of the respondents had been to prison for a drug-related offence. In Table 22 we see that 30 per cent of those who had been to prison were in MMT at the time of the survey, compared with 45 per cent of those who had not been to prison.

By contrast, Table 23 shows that 48 per cent of those who had a family member who had been to prison were in MMT compared with 36 per cent of those with no family member imprisoned.

Table 23: Current MMT status by whether family member imprisoned

	In MMT		Not in MMT		Total	
Family member imprisoned?	No.	%	No.	%	No.	%
Yes	56	48.3	60	51.7	116	100.0
No	143	36.3	251	63.7	394	100.0

Note: Information on imprisonment was missing for 1 respondent.

These two results present an apparent contradiction. On the one hand those who had been to prison were *less* likely to be in MMT than those who had not been to prison. On the other hand, those with a family member who had been to prison were *more* likely to be in MMT than those with no family member imprisoned.

The bivariate association of being currently in MMT with ever having been arrested was also close to significance (with a *p*-value of 0.051). For arrest the direction of the results was the same as for prison, that is, those who had ever been arrested were less likely to be in MMT than were those who had never been arrested. The data are shown in Table 24. It can be seen that 36 per cent of those who had been arrested were in MMT compared with 46 per cent who had not been arrested.

Table 24: Current MMT status by whether arrested

Ever arrested?	In MMT		Not in MMT		Total	
	No.	%	No.	%	No.	%
Yes	132	36.3	232	63.7	364	100.0
No	67	45.6	80	54.4	147	100.0

The findings for imprisonment and arrest appear to run counter to the hypothesis that drug law enforcement encourages users into MMT. Further investigation of the data shows that there are two factors which help explain these findings. The first is the influence of ethnicity. The second is that many of the respondents who were *not* in MMT at the time of the survey had been in MMT some time previously.

We look first at the influence of ethnicity. If the bivariate associations for arrest and imprisonment are separately examined for each ethnic group, there are no statistically significant bivariate associations except for the respondents of Asian background. Out of the total sample of 511 respondents, 101 (20%) were Asian. For this group the associations between arrest and imprisonment and being in MMT are shown in Table 25. Clearly a much lower proportion of the Asian respondents who had been arrested were in MMT at the time of the survey than of those who had not been arrested (11% of those arrested compared with 45% of those not arrested; $X^2 = 12.6$, 1 d.f., $p < 0.001$). Similarly, only 6 per cent of the Asian respondents who had been to prison were in MMT compared with 30 per cent of those who had not been to prison ($X^2 = 10.0$, 1 d.f., $p = 0.002$).

Table 25: Asian respondents:
Current MMT status by whether arrested and whether imprisoned

	In MMT		Not in MMT		Total	
	No.	%	No.	%	No.	%
Ever arrested?						
Yes	9	11.1	72	88.9	81	100.0
No	9	45.0	11	55.0	20	100.0
Ever imprisoned?						
Yes	3	5.9	48	94.1	51	100.0
No	15	30.0	35	70.0	50	100.0

Note: Information on imprisonment was missing for 1 respondent.

The bivariate associations for the whole sample (see Tables 22, 23 and 24) probably result from the observed relationships for the Asian group.

Asian respondents were generally more likely than other respondents to have been arrested and imprisoned and less likely than other respondents to be in MMT at the time of the survey. Eighty per cent of the Asian respondents had been arrested (compared with 71 per cent for the whole sample), 50 per cent had been to prison (compared with 40 per cent for the whole sample), and 17 per cent were in MMT (compared with 39 per cent for the whole sample). The low percentage in MMT could indicate unwillingness to enter MMT or lack of access to MMT. There is some evidence against the former explanation from the fact that 44 per cent of the Asians who were *not* in MMT said they would definitely or probably start methadone if they could,

compared with 39 per cent for the whole sample of respondents not in MMT. The high rates of arrest and imprisonment for Asian respondents and their low rate of participation in MMT could in part explain the relationships observed in Tables 22 and 24.

The inconsistent effects obtained when current treatment status is employed as the response variable probably also stem from the fact that treatment, to put it in the language of Markov processes, is not an 'absorbing state'. Individuals do not commence a heroin habit, accumulate contacts with the police and/or criminal justice system and then simply move into treatment and subsequently remain there. Heroin users appear to vacillate between the heroin market and treatment with the result that those in treatment at any given time are not easily distinguished from those not in treatment. In support of this interpretation it should be observed that, of the 312 respondents not in MMT at the time of the survey, 140 (45%) had been in MMT previously. Nearly 12 per cent of all respondents had been in MMT three or more times before. Only 172 respondents (34%) out of the total 511 in the sample were not currently and had never been in MMT.

Given that drug law enforcement activity could have influenced respondents to enter MMT on previous occasions, current MMT status is probably not the best response variable for testing whether drug law enforcement encourages drug users to seek treatment.

We therefore decided to construct a new response variable using information on both current and previous MMT status, the new variable being whether or not a respondent had ever been in MMT. The bivariate associations of drug law enforcement measures with this new response variable are presented in the next section.

Ever in MMT

Because there were different results for Asian and non-Asian respondents for current MMT status it was decided to examine the bivariate relationships between drug law enforcement measures and ever being in MMT separately for each ethnic group. At the outset it is worth noting that, just as there are significant differences among ethnic groups in the proportions currently in MMT (see Table 6 above), so there were significant differences among ethnic groups in the proportions who had ever been in MMT ($X^2 = 40.6$, 4 d.f., $p < 0.001$). The proportions are shown in Table 26. (For this table Pacific Islanders are included in the 'Other' grouping.)

Table 26: Ever in MMT by ethnicity

	Ever in MMT		Never in MMT		Total	
	No.	%	No.	%	No.	%
Asian	44	43.6	57	56.4	101	100.0
Caucasian	209	77.1	62	22.9	271	100.0
Middle Eastern	28	65.1	15	34.9	43	100.0
Aboriginal	42	57.5	31	42.5	73	100.0
Other	16	72.7	6	27.3	22	100.0

Note: Information on ethnicity was missing for 1 respondent.

It is notable that the proportion of Asian respondents who had ever been in MMT is lower than for any other ethnic group. Less than half the Asian respondents had ever been in MMT whereas nearly 80 per cent of the Caucasian respondents had some experience of MMT.

There were no significant bivariate associations of drug law enforcement measures with ever being in MMT for Asian or Middle Eastern respondents. For Caucasians there were significant associations of MMT status with both arrest and imprisonment (shown in Table 27):

Arrest: 81 per cent of the Caucasians who had ever been arrested for a drug-related offence had been in MMT, compared with 69 per cent of the Caucasians who had never been arrested (X^2 = 4.2, 1 d.f., p = 0.041);

Prison: 84 per cent of the Caucasians who had ever been to prison for a drug-related offence had been in MMT, compared with 73 per cent of the Caucasians who had never been to prison (X^2 = 4.0, 1 d.f., p = 0.045).

Table 27: Caucasian respondents:
Ever in MMT by whether arrested and whether imprisoned

	Ever in MMT		Never in MMT		Total	
	No.	%	No.	%	No.	%
Ever arrested?						
Yes	150	80.6	36	19.4	186	100.0
No	59	69.4	26	30.6	85	100.0
Ever imprisoned?						
Yes	79	84.0	15	16.0	94	100.0
No	129	73.3	47	26.7	176	100.0

Note: Information on imprisonment was missing for 1 respondent.

For Aboriginal respondents there was a significant association with whether a family member had been to prison. The data are shown in Table 28: 76 per cent of the Aboriginal respondents with a family member who had been to prison for a drug-related offence, had been in MMT, compared with 48 per cent of the Aboriginal respondents with no family member imprisoned (X^2 = 5.3, 1 d.f., p = 0.021).

Table 28: Aboriginal respondents:
Ever in MMT by whether family member imprisoned

	Ever in MMT		Never in MMT		Total	
Family member imprisoned?	No.	%	No.	%	No.	%
Yes	19	76.0	6	24.0	25	100.0
No	23	47.9	25	52.1	48	100.0

For the respondents in the 'other' ethnic category (i.e. not Asian or Caucasian or Middle Eastern or Aboriginal) there were significant bivariate associations with arrest and imprisonment:

Arrest: 87 per cent of the 15 'others' who had ever been arrested for a drug-related offence had been in MMT, compared with 43 per cent of the 7 'others' who had never been arrested (X^2 = 4.6, 1 d.f., p = 0.032);

Prison: 100 per cent of the 7 'others' who had ever been to prison for a drug-related offence had been in MMT, compared with 60 per cent of the 15 'others' who had never been to prison (X^2 = 3.9, 1 d.f., p = 0.0497).

All of these bivariate associations are consistent with drug law enforcement encouraging drug users to seek treatment, because in each case, the respondents who had experienced the impact of the relevant drug law enforcement variable were more likely to have been in MMT than were those who had not experienced the impact of the relevant drug law enforcement variable. In the next section we examine whether the associations remain significant when we control for other factors which might influence a drug user's decision to seek treatment.

Logistic regression models

Want MMT

The response variable in the logistic regression models for *want MMT* was a dichotomous variable based on the response to the question 'if you could start methadone tomorrow would you?'. The variable took the value 1 if the response was 'definitely' or 'probably' and took the value 0 if the response was 'definitely not' or 'probably not'. If there was no response to this question or the respondent was already in methadone treatment, the record was excluded from the analysis.

None of the control variables had a significant bivariate association with *want MMT*. It was therefore difficult to find a base model which fitted the data well. The control variables finally included in the base model for predicting *want MMT* were:

- whether the respondent was living with one or more children (own or partner's);

- whether the respondent had ever overdosed on heroin;

- respondent's age;

- respondent's ethnicity.

Age was included in the model as a group of three dichotomous comparisons (comparing those aged 30 and over with each of the 15-19, 20-24 and 25-29 age groups); ethnicity was included as a group of four dichotomous comparisons (comparing Caucasians with those of Asian, Middle Eastern, Aboriginal and other backgrounds).

In this base model one comparison from each of the age and ethnicity groups was significant, as can be seen in Table 29. Whether the respondent was living with children was retained in the model because this variable was a strong predictor of ever being in MMT. Whether the respondent had ever overdosed was retained in the model because its bivariate association with *want MMT* was close to statistical significance (p = 0.060) and it was also close to significance in this model, with a similar p-value. (Also, a

Table 29: Base model for *want MMT*

Variable	Parameter estimate	Standard error	p-value	Odds ratio	CI lower limit	CI upper limit
Intercept	-0.0929	0.3067	0.7619			
Living with child	0.4723	0.3594	0.1888			
Overdosed	-0.4698	0.2516	0.0619			
Age						
15-19 v. 30+	-0.8643	0.3761	0.0216	0.421	0.199	0.873
20-24 v. 30+	-0.4560	0.3285	0.1651			
25-29 v. 30+	-0.4235	0.3532	0.2304			
Ethnicity						
Asian v. Caucasian	0.4825	0.3064	0.1153			
Middle Eastern v. Caucasian	-0.1403	0.5111	0.7837			
Aboriginal v. Caucasian	0.2219	0.3359	0.5089			
Other v. Caucasian	1.2079	0.5587	0.0306	3.347	1.144	10.596

Note: CI = 95% confidence interval.   Number of observations: 306.   Deviance = 393.2, 296 d.f.

model with age and ethnicity *only* was found to be a poorer fit to the data than the base model with the two additional variables included.)

This base model did not provide a very good fit to the data. The deviance was 393.2, which compared with its asymptotic chi-square with 296 degrees of freedom has a *p*-value of 0.0001, a clear indication of the poor fit.

Table 30: Model for *want MMT* with imprisonment and control variables as predictors

Variable	Parameter estimate	Standard error	p-value	Odds ratio	CI lower limit	CI upper limit
Intercept	-0.2772	0.3190	0.3849			
Imprisoned	0.6232	0.2630	0.0178	1.865	1.118	3.140
Living with child	0.4130	0.3641	0.2567			
Overdosed	-0.6252	0.2634	0.0176	0.535	0.317	0.892
Age						
15-19 v. 30+	-0.7369	0.3835	0.0547			
20-24 v. 30+	-0.4292	0.3320	0.1961			
25-29 v. 30+	-0.4551	0.3573	0.2028			
Ethnicity						
Asian v. Caucasian	0.3037	0.3184	0.3402			
Middle Eastern v. Caucasian	-0.1402	0.5140	0.7850			
Aboriginal v. Caucasian	0.1536	0.3393	0.6509			
Other v. Caucasian	1.2599	0.5660	0.0260	3.525	1.189	11.323

Note: CI = 95% confidence interval.   Number of observations: 306.   Deviance = 387.5, 295 d.f.

Given the poor fit of the base model it is not surprising that imprisonment, which was the only drug law enforcement measure to have a significant bivariate association with wanting MMT, was also significant in the presence of the controls. The results of fitting the model are shown in Table 30. The odds ratio for imprisonment was 1.9 indicating that the odds of wanting MMT were 1.9 times greater for those who had been to prison for a drug-related offence than for those who hadn't been to prison. The probability of

wanting MMT can be estimated from the fitted model. For example, for a Caucasian aged 20-24 who is not living with children and has never overdosed, having been to prison increases the probability of wanting MMT from 0.33 to 0.48. Note that these probabilities are similar to the proportions observed in Table 21, again indicating that the control variables have little influence on the likelihood of wanting MMT.

Ever in MMT

The response variable in the logistic regression models for *ever in MMT* was a dichotomous variable taking the value 1 if the respondent was either in MMT at the time of the survey or had been in MMT previously, and taking the value 0 if the respondent had never been in MMT.

All respondents were included in the analysis, regardless of their ethnicity. Ethnicity was included as a control variable in the logistic regression models.

The control variables included in the base model for predicting *ever in MMT* were:

- whether the respondent was living with one or more children (own or partner's);

- whether the respondent's main source of income was crime;

- whether the respondent usually scored heroin on the street;

- whether the respondent had a close friend who is a regular user of heroin;

- whether the respondent had any close friends on methadone;

- respondent's age;

- respondent's ethnicity;

- respondent's years of heroin use (length of time since respondent first used heroin regularly);

- respondent's daily expenditure on heroin (prior to MMT entry for those in MMT, current for those not in MMT).

The first five of these variables were single dichotomous predictors; the last four variables were entered in the regressions as groups of dichotomous comparisons.

Tables showing the bivariate relationships of the control variables with ever being in MMT can be found in Appendix B. Although there were significant bivariate associations with both having had a friend who died from an overdose or drug-related illness, and having ever overdosed oneself, neither of these variables was necessary in the base model. Both were strongly related to both age and years of heroin use and they were not significant when included in a regression model where both age and years of use were also present.

Table 31: Base model for *ever in MMT*

Variable	Parameter estimate	Standard error	p-value	Odds ratio	CI lower limit	CI upper limit
Intercept	2.2631	0.5729	0.0001			
Living with child	0.9762	0.3656	0.0076	2.654	1.330	5.619
Income: crime v. other	-0.5281	0.2685	0.0492	0.590	0.346	0.993
Score on street v. off street	-0.5170	0.2403	0.0315	0.596	0.371	0.953
Friend who uses	-0.8950	0.3239	0.0057	0.409	0.212	0.759
Friend in MMT	0.5980	0.2453	0.0148	1.818	1.126	2.951
Age						
15-19 v. 30+	-1.5212	0.4260	0.0004	0.218	0.093	0.497
20-24 v. 30+	-0.6355	0.3830	0.0971			
25-29 v. 30+	-0.3478	0.3812	0.3615			
Ethnicity						
Asian v. Caucasian	-1.1874	0.3027	0.0001	0.305	0.167	0.550
Middle Eastern v. Caucasian	-0.9973	0.4227	0.0183	0.369	0.162	0.856
Aboriginal v. Caucasian	-1.2326	0.3434	0.0003	0.292	0.148	0.570
Other v. Caucasian	-0.1331	0.6194	0.8299			
Years of regular use						
less than 1 v. 11+	-1.8861	0.6386	0.0031	0.152	0.041	0.511
1-2 v. 11+	-1.0369	0.5301	0.0504			
3-5 v. 11+	-0.4968	0.5305	0.3491			
6-10 v. 11+	-0.4851	0.5210	0.3518			
Avge daily heroin expenditure						
$51 - $100 v. $50 or less	1.2472	0.3429	0.0003	3.481	1.791	6.887
> $100 v. $50 or less	1.4205	0.3406	0.0001	4.139	2.141	8.161

Note: CI = 95% confidence interval. Number of observations: 485. Deviance = 467.6, 466 d.f.

The base model, which is shown in Table 31, has a deviance of 467.6, which compared with its asymptotic chi-square with 466 degrees of freedom has a p-value of 0.47, indicating a reasonable model fit. One particularly noticeable feature of this model is the strong effect which expenditure on heroin exerts on treatment experience. The probability of ever having been in MMT can be estimated from the fitted model. For example, consider a user who is a 20-24 year old Caucasian, whose main source of income is crime, who is not living with children, who usually scores heroin on the street, who has a close friend who uses heroin regularly and also has a close friend on methadone and who started using heroin regularly about one to two years ago. For such a user the probability of ever having been in MMT is 0.32 if the user spends no more than $50 per day on heroin but increases to 0.62 if the user spends $51 to $100 per day, and to 0.66 if the user spends more than $100 per day on heroin.

Because the price of heroin plays a key role in determining expenditure on heroin and the price of heroin is influenced, in turn, by supply-side drug law enforcement, this result suggests that supply-side drug law enforcement may be exerting a strong indirect effect on entry into treatment.

The only street-level drug law enforcement measures which were significant in the presence of the control variables were having a family member imprisoned and having a friend imprisoned. The model with friend imprisoned as a predictor is shown in Table 32 and the model with family member imprisoned as a predictor is shown in Table 33. In both cases the odds ratio for the imprisonment variable was greater than 2, indicating that, for those with a friend or family member who had been to prison for a drug-related offence, the odds of having ever been in MMT were more than double the odds for those without a friend or family member imprisoned.

Table 32: Model for *ever in MMT* with friend imprisoned and control variables as predictors

Variable	Parameter estimate	Standard error	p-value	Odds ratio	CI lower limit	CI upper limit
Intercept	1.6967	0.6065	0.0051			
Friend imprisoned	1.0479	0.3198	0.0010	2.852	1.529	5.375
Living with child	0.9529	0.3687	0.0097	2.593	1.291	5.515
Income: crime v. other	-0.7354	0.2825	0.0092	0.479	0.273	0.827
Score on street v. off street	-0.5691	0.2457	0.0205	0.566	0.348	0.914
Friend who uses	-1.0360	0.3344	0.0019	0.355	0.181	0.672
Friend in MMT	0.5126	0.2511	0.0412	1.670	1.022	2.739
Age						
15-19 v. 30+	-1.7118	0.4373	0.0001	0.181	0.075	0.419
20-24 v. 30+	-0.8608	0.3988	0.0309	0.423	0.190	0.912
25-29 v. 30+	-0.3797	0.3926	0.3334			
Ethnicity						
Asian v. Caucasian	-1.1914	0.3057	0.0001	0.304	0.166	0.551
Middle Eastern v. Caucasian	-0.9645	0.4332	0.0260	0.381	0.164	0.902
Aboriginal v. Caucasian	-1.2364	0.3539	0.0005	0.290	0.144	0.580
Other v. Caucasian	-0.2198	0.6169	0.7217			
Years of regular use						
less than 1 v. 11+	-1.7946	0.6476	0.0056	0.166	0.044	0.570
1-2 v. 11+	-0.7298	0.5485	0.1833			
3-5 v. 11+	-0.3131	0.5451	0.5657			
6-10 v. 11+	-0.3551	0.5362	0.5079			
Average daily heroin expenditure						
$51 - $100 v. $50 or less	1.2168	0.3468	0.0004	3.376	1.724	6.733
> $100 v. $50 or less	1.4252	0.3478	0.0001	4.158	2.122	8.322

Note: CI = 95% confidence interval.   Number of observations: 481.   Deviance = 452.5, 461 d.f.

The probability of ever having been in MMT can be estimated from the fitted model in each case. Consider a user who is a 20-24 year old Caucasian, whose main source of income is crime, who is not living with children, who usually scores heroin on the street, who has a close friend who uses heroin regularly and also has a close friend on

methadone, who started using regularly about one to two years ago and has a daily heroin expenditure between $50 and $100. For such a user the probability of ever having been in MMT is increased from 0.59 to 0.75 if the user has a family member who has been to prison for a drug-related offence. Similarly, for such a user the probability of ever having been in MMT is increased from 0.38 to 0.63 if the user has a friend who has been to prison for a drug-related offence.

Table 33: Model for *ever in MMT* with family member imprisoned and control variables as predictors

Variable	Parameter estimate	Standard error	p-value	Odds ratio	CI lower limit	CI upper limit
Intercept	2.2825	0.5778	0.0001			
Family member imprisoned	0.7353	0.3014	0.0147	2.086	1.168	3.818
Living with child	0.9164	0.3708	0.0135	2.500	1.240	5.346
Income: crime v. other	-0.5519	0.2688	0.0401	0.576	0.338	0.971
Score on street v. off street	-0.5263	0.2417	0.0294	0.591	0.367	0.947
Friend who uses	-0.9594	0.3269	0.0033	0.383	0.198	0.716
Friend in MMT	0.5790	0.2468	0.0190	1.784	1.102	2.904
Age						
15-19 v. 30+	-1.5726	0.4300	0.0003	0.208	0.088	0.475
20-24 v. 30+	-0.7022	0.3862	0.0690			
25-29 v. 30+	-0.3315	0.3825	0.3861			
Ethnicity						
Asian v. Caucasian	-1.2069	0.3050	0.0001	0.299	0.163	0.542
Middle Eastern v. Caucasian	-0.9413	0.4239	0.0264	0.390	0.171	0.907
Aboriginal v. Caucasian	-1.3644	0.3510	0.0001	0.256	0.127	0.507
Other v. Caucasian	-0.1653	0.6267	0.7919			
Years of regular use						
less than 1 v. 11+	-2.0049	0.6448	0.0019	0.135	0.036	0.459
1-2 v. 11+	-1.0856	0.5337	0.0419	0.338	0.113	0.931
3-5 v. 11+	-0.5529	0.5316	0.2983			
6-10 v. 11+	-0.5458	0.5224	0.2961			
Average daily heroin expenditure						
$51 - $100 v. $50 or less	1.3097	0.3457	0.0002	3.705	1.897	7.376
> $100 v. $50 or less	1.4322	0.3416	0.0001	4.188	2.162	8.274

Note: CI = 95% confidence interval.   Number of observations: 485.   Deviance = 461.3, 465 d.f.

Because arrest is related to years of regular heroin use (see Table 12) and imprisonment is related to both age and years of regular heroin use (see Tables 16 and 19), it is possible that these factors may mask the effects of arrest and imprisonment. In other words it may be that it is the experience of arrest and imprisonment, rather a person's age or years of regular heroin use, which affects whether or not the person enters treatment. If age and years of regular heroin use are excluded from the logistic regression model for predicting whether a respondent had ever been in MMT both arrest and imprisonment are found to be significant in the presence of the remaining control variables. The tables showing the results for these models can be found in Appendix C.

THE EFFECT OF DRUG LAW ENFORCEMENT ON SAFE USER PRACTICES

How do police react when they interrupt heroin use?

Respondents were asked if they had ever been caught or interrupted by police while using heroin. If they responded in the affirmative they were asked what the police did and how long ago the incident had occurred. We have already provided the response to this question for all respondents who answered it (see Figure 7, above). However for some respondents the interruption had occurred a long time prior to the survey (up to 15 years earlier). There were 130 respondents for whom the interruption had occurred in the 12 months prior to the survey. Here we restrict our examination of police reactions to this latter group of respondents, where the police interruption was relatively recent.

Table 34: Police action against respondents caught using heroin

What police did after What police did after interrupting heroin use	Number of respondents	Percentage of respondents
Destroy/confiscate heroin/equipment	24	18.6
Move on / warn	20	15.5
Search	16	12.4
Warrant check	28	21.7
Charge with use or possess implements	33	25.6
Charge with trespass	24	18.6
Charge with supply	2	1.6
Other	15	11.6

Recall that the question on police reaction was open-ended and that more than one response was possible. The responses were coded into the seven specific categories shown in Table 34. Any responses which could not be classified into the seven categories was included in 'other'. The percentages in the table are based on only 129 respondents because one of the respondents interrupted in the previous 12 months did not answer the question on police action.

Table 35: Police action against respondents caught using heroin by whether smoking or injecting

What police did after interrupting heroin use	Smoking when interrupted		Injecting when interrupted	
	Number of respondents	Percentage of respondents	Number of respondents	Percentage of respondents
Destroy/confiscate heroin/equipment	3	23.1	21	18.3
Move on / warn	1	7.7	18	15.7
Search	1	7.7	15	13.0
Warrant check	1	7.7	27	23.5
Charge with use or possess implements	6	46.2	27	23.5
Charge with trespass	1	7.7	23	20.0
Charge with supply	0	0.0	2	1.7
Other	2	15.4	13	11.3

Charging the respondent with an offence or carrying out a warrant check were the most frequent actions by police on interrupting heroin use. For about 19 per cent of respondents the police either destroyed or confiscated the equipment and/or squirted the heroin out of the syringe.

The respondents were also asked if they were smoking or injecting at the time they were caught or interrupted by police. Of the 130 respondents caught or interrupted by police in the 12 months prior to the survey, 14 said they were smoking and 115 said they were injecting (this information was missing for one respondent). Table 35 shows the same information as in Table 34, disaggregated by the method of using heroin at the time of police interruption. The percentages are based on a total of 13 respondents for smoking (one of the 'smokers' did not provide information on what the police did) and 115 respondents for injecting.

The pattern is fairly similar for smokers and injectors, the main difference being that smokers were more frequently charged with using or possessing implements than with other offences.

Do users inject where they feel safe?

Respondents were asked if they usually use heroin in a place where they feel safe from police. As noted earlier, of the 499 who answered the question, 85 per cent said that they did. Table 36 shows the responses crosstabulated by the respondent's usual method of using heroin.

Table 36: Whether use where safe by usual method of heroin use

Usually use where safe from police?	Inject		Smoke/chase/inhale		Other	
	No.	%	No.	%	No.	%
Yes	376	84.9	44	89.8	2	66.7
No	67	15.1	5	10.2	1	33.3
Total	443	100.0	49	100.0	3	100.0

Injection practices

Respondents were asked about the frequency of various unsafe injection practices, namely how often they:

- injected without using a swab

- injected without using a tourniquet

- discarded the syringe quickly

- used a syringe before or after someone else.

For those who said they did not usually use heroin in a place where they felt safe from police, the questions were prefaced with the words 'to avoid being caught by police' (see Question 20 in the survey instrument in Appendix A). The possible responses were 'often', 'sometimes' or 'never'. Nevertheless there were so many respondents

who remarked that they never used swabs or tourniquets or didn't need tourniquets that these responses were written down by the interviewers and later coded as additional responses.

Tables 37 to 40 show the responses for each of the injection practices, disaggregated by whether or not the respondent usually used heroin in a place where they felt safe from police.

Table 37: Frequency of injecting without swab

Inject without swab	Use where safe		Don't use where safe	
	No.	%	No.	%
Often	70	18.0	12	18.8
Sometimes	176	45.4	31	48.4
Never	127	32.7	16	25.0
Don't use / never use	15	3.9	5	7.8
Total	388	100.0	64	100.0

Overall 18 per cent of respondents said they often injected without using a swab and a further 46 per cent said they sometimes injected without using a swab. The pattern of responses is similar, regardless of whether the respondents use heroin where they feel safe. There is no statistically significant difference between the two groups in the frequency of injecting without a swab. (There is no change in this result if the 'don't use / never use' responses are excluded from the analysis.)

Table 38: Frequency of injecting without tourniquet

Inject without tourniquet	Use where safe		Don't use where safe	
	No.	%	No.	%
Often	48	12.4	3	4.7
Sometimes	43	11.1	5	7.8
Never	125	32.4	22	34.4
Don't use / don't need / never use	170	44.0	34	53.1
Total	386	100.0	64	100.0

A substantial proportion of respondents said that they didn't use or didn't need to use a tourniquet. Overall 45 per cent of respondents fell into these categories. About a third of respondents said they never injected without a tourniquet: 32 per cent of those who use where they feel safe and 34 per cent of those who don't use where they feel safe. There is no statistically significant difference in the pattern of responses between the two types of users. (Again, there is no change in this result if the analysis is restricted to the subset of responses which includes only the 'often', 'sometimes' and 'never' responses.)

There is, however, a statistically significant difference in the pattern of response relating to discarding syringes ($X^2 = 7.8$, 2 d.f., p = 0.020). Seventy-four per cent of those who usually use heroin where they feel safe from police said they never discard syringes quickly, compared with 60 per cent of those who don't usually use heroin where they feel safe from police.

Table 39: Frequency of discarding syringe quickly

Discard syringe quickly	Use where safe		Don't use where safe	
	No.	%	No.	%
Often	43	11.2	7	11.1
Sometimes	56	14.6	18	28.6
Never	284	74.2	38	60.3
Total	383	100.0	63	100.0

There was no significant difference in the relative frequency of sharing syringes. However, only a very small number of respondents said they often used a syringe before or after someone else. If these response are included with the sometimes category, there is a significant difference for the resulting two by two contingency table ($X^2 = 4.7$, 1 d.f., $p = 0.031$). The proportion who never share syringes is higher for those who use heroin where they feel safe (81%) than for those who don't (69%).

Table 40: Frequency of sharing syringe

Share syringe	Use where safe		Don't use where safe	
	No.	%	No.	%
Often	4	1.0	2	3.1
Sometimes	71	18.3	18	28.1
Never	312	80.6	44	68.8
Total	387	100.0	64	100.0

DISCUSSION

Our principal aims in this report were to (a) assess whether street-level drug law enforcement encourages heroin users into MMT and (b) assess the extent to which it promotes unsafe injection practices. In this section we discuss the results of the study under these same headings, analyse their implications for policy and identify fruitful areas for future research.

Although the heroin users interviewed for the purpose of this research could not be described as a representative sample of all heroin users, they typify 'street' heroin users in Sydney. Ethnographic studies of 'street' heroin users by Maher and colleagues (Maher, Dixon, Swift & Nguyen 1997; Maher, Dixon, Lynskey & Hall 1998) and by Bammer and Weekes (1993) have presented a somewhat dismal picture of life for this group. The present study confirms this picture. The average age of onset of heroin use among the current respondents was a little under 19 years. Within two years of onset most of the heroin users in the present study were regular users of the drug. Expenditure on heroin among regular users not in treatment averaged $140 per day. Two-thirds of those whose heroin-using career had lasted more than ten years had experienced a heroin overdose. The majority of those whose heroin-using career exceeded five years reported some kind of drug-related health problem.

The majority of those interviewed stated that illegal activity provided the main source of income they used to purchase heroin. More than one-third of respondents reported being stopped at least once a month by police. Nearly 40 per cent had been interrupted by police while using heroin. More than 70 per cent had been arrested for a drug-related offence. Nearly two-thirds of those aged 40 and over (and more than half of all Aboriginal and Asian respondents) had been imprisoned for a drug-related offence. More than 80 per cent of all respondents had friends who had been imprisoned for a drug-related offence and nearly a quarter had family members who had been imprisoned for the same reason. Twenty-five per cent had a drug-related court case pending at the time of interview.

THE EFFECTS OF DRUG LAW ENFORCEMENT ON TREATMENT EXPERIENCE

One would expect this level of contact with police and the criminal justice system to encourage heroin users into treatment. The first line of direct evidence which supports this hypothesis lies in the fact that the majority of heroin users cite 'avoiding more trouble with the police/courts' as important or very important in their decision to enter MMT.

It is possible that respondents would have less strongly endorsed this as their reason for entering treatment had a wider range of other possible reasons for entering treatment been put before them but there are two reasons for doubting this possibility. Firstly, the reasons offered were those which had emerged in previous studies as important factors in the decision to enter treatment. Secondly, it was always open to respondents to rank any of the law enforcement related reasons as 'not very important' or 'inapplicable'. In the event, the reason most frequently cited as 'very important' (keeping relationship/family together) was unrelated to drug law enforcement, yet respondents were not, on account of this, prompted to give a low ranking to the law enforcement related reasons.

The results of the logistic regression analyses present a picture broadly consistent with the hypothesis that drug law enforcement encourages entry into treatment, although the evidence is stronger in relation to treatment experience than desire for (i.e. 'wanting') treatment. In the latter case, individuals not in MMT were more likely to say they want it if they had been imprisoned for a drug-related offence. This effect held up when controls were introduced for other factors which influence the likelihood of an individual wanting MMT (i.e. whether the respondent was living with children, whether the respondent had ever overdosed, the age and ethnicity of the respondent). However the model predicting the desire for MMT did not provide a good fit to the data. This suggests that one or more of the relevant factors predicting the desire for MMT had not been included in the model (i.e. not measured in the study).

When the dependent variable in the logistic regression was lifetime treatment status the results were much clearer. Respondents who had had a family member or a friend imprisoned for a drug-related offence were more likely to have been in MMT themselves. These effects held up in the presence of a wide range of other factors which predicted MMT experience, including living with a child, the legal status of the respondent's main source of income, the usual location in which heroin is obtained, whether they have a friend who uses, whether they have a friend in MMT, the age and ethnicity of the respondent, the number of years spent regularly using heroin and average daily heroin expenditure. The model predicting treatment experience provided a good fit to the data. The model results therefore support the hypothesis that individuals are affected in their decision about whether to enter treatment by the experiences their friends and relatives have with the criminal justice system.

Naturally it might be asked, if having had the experience of seeing friends and/or family imprisoned for a drug-related offence encourages a respondent to enter treatment, would we not expect to see similar, if not more marked, effects among respondents who have themselves been imprisoned for a drug-related offence? There *were* significant positive bivariate associations between arrest and experience of MMT and between imprisonment and experience of MMT, at least for Caucasian respondents (see Table 27). However neither arrest nor imprisonment for a drug-related offence exerted any significant effect on MMT experience when age and period of time spent as a regular heroin user were included as controls in the relevant regression model (along with the other variables employed as controls in the regression models for friend and family member).

This result could be interpreted in one of two ways. It could mean that arrest and imprisonment do not encourage heroin users into treatment but are correlated with other factors which do (viz. age and time spent regularly using heroin). Alternatively it could mean that the effects of arrest and imprisonment are simply being masked by age and period of time spent regularly using heroin. The second interpretation is supported by two observations. Firstly, Tables 12, 16 and 19 show that the likelihood of arrest and imprisonment increases with age and/or the period of time spent regularly using heroin. Secondly, the arrest or imprisonment of a respondent for a drug-related offence *does* predict MMT experience when age and period of time spent regularly using heroin are dropped as controls from the relevant regression model.

There is some evidence that supply-side law enforcement also indirectly encourages entry into treatment through its effects on the monetary cost of heroin. An individual's daily expenditure on heroin is partly determined by the level of consumption of heroin and the cost per unit of heroin consumed. As we noted in the introduction to this report, the cost of heroin at street level is determined in part by the activities of police engaged

in supply-side drug law enforcement. Put simply, heroin is (relatively) expensive because traffickers require substantial profits to make the risks associated with heroin trafficking worth taking. Evidence that the higher levels of expenditure on heroin are associated with a greater likelihood of having tried MMT would therefore tend to support the hypothesis that (supply-side) law enforcement encourages entry into treatment.

Inspection of the odds ratios for the base model for ever having been in MMT (see Table 31) indicates that a higher level of expenditure on heroin was a strong independent predictor of treatment experience. Its significance can be illustrated in the following way. A 20-24 year old Caucasian heroin user, whose main source of income is crime, who is not living with children (own or partner's), who usually scores heroin on the street, has a close friend who uses heroin regularly and also has a close friend on methadone, who started using regularly about one to two years ago and whose average daily expenditure on heroin is $50 or less, has an estimated probability of ever having been in MMT of 0.32. If, however, the user's average daily expenditure on heroin is $51 to $100 the estimated probability of ever having been in MMT increases by 30 percentage points, to 0.62. This is a strong effect and it suggests that the price of heroin may be constraining aggregate demand for the drug more than is commonly assumed.

THE EFFECT OF DRUG LAW ENFORCEMENT ON SAFE INJECTION PRACTICES

Evidence on the effects of street-level drug law enforcement on injection practices indicates that the vast majority of heroin users inject heroin in a place where they feel safe from the police. To this extent drug law enforcement cannot fairly be said to be responsible for any unsafe injection practices they might engage in. At the same time there are significant differences between those who inject in a safe place and those who do not in the frequency with which they shared and discarded syringes. Those who inject in a place where they do not feel safe from the police were more likely to discard and share injection equipment. The finding concerning the discarding of injection equipment is somewhat ironic given the emphasis placed on street-level drug law enforcement as a means of reducing the public amenity problem created by injecting drug users. But the finding concerning needle sharing is of particular concern since prevention of needle sharing lies at the heart of efforts to control the spread of blood-borne viruses.

One could argue that the tendency to use heroin in a place where there is a risk of apprehension by police and the tendency not to take basic health precautions when injecting are simply two different manifestations of risk-taking behaviour (causally unrelated to one another). Given the response of police to those they catch injecting heroin (see Table 34) and the ethnographic evidence from Maher's research (Maher, Dixon, Swift & Nguyen 1997; Maher, Dixon, Lynskey & Hall 1998), however, the more plausible interpretation of the data would seem to be that those who inject on the street often share and discard needles to reduce their chances of being caught by police. Even if this argument is not accepted the risks created by discarded needles and needle sharing suggest that it would be unwise to proceed on the assumption that street-level law enforcement exerts no effect on needle sharing or discarding.

This possibility raises the question of how street-level law enforcement might be carried on without increasing the threat to public health created by injecting drug use. There are a number of ways in which this objective might be achieved. Most obviously one could create 'safe injection rooms' as recommended at the recent NSW Drug Summit

(NSW Government 1999). In theory such facilities could prevent street-level drug law enforcement prompting heroin users to engage in unsafe injection practices. The creation of such facilities, however, is not without its complications. If they are few in number it may be fairly easy to prevent them becoming focal points for heroin trafficking. Unless they are made widely available, however, they are unlikely to exert much aggregate effect on the public health problems created by street-level drug law enforcement. If safe injection rooms are made widely available they are likely to bring significant public health benefits. However it may also prove more difficult to prevent them becoming focal points for heroin distribution.[9]

Another option for reducing the 'collateral damage' caused by street-level drug law enforcement (also canvassed at the NSW Drug Summit) would be to remove the offence of self-administration of heroin. This option would render the law on heroin use more consistent with the needle exchange program. However it also has its difficulties. It would be difficult to remove the prohibition against self-administration without also removing it for heroin use and/or possession. Decriminalisation of heroin use and possession might only serve to increase demand for the drug.[10] Even if this possibility is discounted, heroin users are clearly vulnerable to enforcement action for a wide range of offences other than self-administration of heroin (see Table 34).[11] Thus while decriminalisation of self-administration might reduce some of the threat posed by drug law enforcement the change would probably exert little practical effect on the pattern and nature of contact between heroin users and police.

Pending better evidence about the costs and benefits of safe injection rooms perhaps the best course of action for senior police managers is to try to discourage policing practices which increase the risk of unsafe injection practices. It is difficult to provide an exhaustive list of such practices. But police should clearly avoid the confiscation or destruction of unused injection equipment, unnecessarily aggressive verbal or physical behaviour when arresting or questioning heroin users and surveillance and enforcement activity in the immediate vicinity of needle exchange centres. It would also seem wise to avoid so-called 'zero tolerance policing' (i.e. the arrest of heroin users for very minor or trivial offences) except where such policing can be shown to be absolutely necessary to deal with a serious crime or public order problem.

CONCLUSION

Inasmuch as the monetary and non-monetary costs associated with heroin encourage heroin users into treatment (thereby reducing heroin consumption) the present study provides evidence that both supply-side and street-level drug law enforcement have a role to play in harm minimisation. Nevertheless it is important to enter a few important caveats in relation to this conclusion.

Firstly, the data gathered in the present study rest on the assumption that the likelihood of trying MMT increases because of contact with police or the criminal justice system, not vice versa. The assumption seems reasonable but the fact is that the data gathered in this study do not allow us to test it. To test it thoroughly would require a longitudinal study of heroin users or, at the very least, a time series analysis of the relationship between some aggregate-level measure of the rate of contact between heroin users and police or the criminal justice system (arrest rates, say) and the rate of entry into treatment.

Secondly, even if the results of the current study are read as indicating that street-level drug law enforcement encourages entry into treatment, it does not follow that dramatically increasing the level or intensity of street-level drug law enforcement will further hasten the rate of entry into treatment. The present study did not examine the

effects of a police crackdown. In effect it examined the effects of ongoing drug law enforcement activity on heroin users drawn from a range of locations and over a long period of time. As we noted in the introduction to this report, studies of police crackdowns do not consistently support the conclusion that they encourage entry into treatment. Moreover, as we have already observed, given the public health risks associated with aggressive street-level drug law enforcement it would be wise to proceed with caution in the adoption of such tactics.

Thirdly, while arrest and imprisonment have emerged from this study as predictors of entry into treatment, it does not follow that police actually need to arrest or imprison heroin users to get them to enter into MMT. Arrest and imprisonment (especially the latter) are likely to follow a pattern of repeated contacts with police, many of which would not have resulted in arrest or imprisonment. The data collected in this study are certainly consistent with the conjecture that the *experience* of arrest or imprisonment is necessary to prompt entry into treatment. But they are equally consistent with the conjecture that arrest and imprisonment predict entry into treatment because these variables simply act as proxies for the effect of 'repeatedly getting into trouble with the law'.

Fourthly, while the effect of arrest and imprisonment on entry into MMT was evident for Caucasian respondents, Asian, Middle Eastern and Aboriginal respondents showed much less proclivity to enter into MMT. This was true even though a high percentage of Asian and Aboriginal respondents had previously been imprisoned for a drug-related offence. Thus, even if it is accepted that drug law enforcement encourages entry into treatment, we should not assume that its effects are uniform for all ethnic groups.

The contribution that drug law enforcement can make to harm minimisation, then, is influenced by a number of important factors. Most obviously it is influenced by the ability of police to conduct street-level drug law enforcement in a way which does not conflict with public health imperatives. Senior police need to work in close partnership with public health authorities to identify the best means of achieving this objective. Perhaps more importantly, they also need to ensure that the agreements they enter into with health authorities to limit the public health risks associated with heroin use have practical meaning and significance for those working 'on the beat'. There is no point having a 'Head Office' commitment to harm minimisation if the officers actually enforcing drug laws are given no sense of what that means in practice or why it is an important part of their work.

Another factor which influences the contribution drug law enforcement can make to harm minimisation is the availability of treatment. If drug law enforcement encourages entry into treatment, it follows that any unmet demand for treatment will constrain the effectiveness of drug law enforcement. Nearly 40 per cent of those interviewed in the present study who were not currently in MMT said that they would 'definitely' or 'probably' enter MMT 'tomorrow' if they could. Even allowing exaggeration by some respondents, this finding suggests that there is a shortage of treatment places on the public methadone program for heroin users.[12] It is reassuring to note the NSW Government's recently stated intention to expand the public methadone program. What needs to be understood by policy makers, however, is the general point that expenditure on treatment should be geared to meet the demand for it created by drug law enforcement.

The impact of drug law enforcement on harm minimisation is also clearly affected by the suitability and attractiveness of treatment and its allied social support services. The present study provides no real insight into why Asian and Aboriginal heroin users do

not enter MMT. Lack of interest does not seem to be the explanation, although a high proportion of Asian respondents appear to be concerned about substituting one addiction for another.[13] Ambivalence toward MMT on the grounds that it is addictive or hard to withdraw from has been noted in other studies (Rosenblum, Magura & Joseph 1991). What makes the relative absence of Asian and Aboriginal respondents in MMT especially puzzling in the present study, however, is that Asian and Aboriginal respondents (not in MMT) were more likely than Caucasian or Middle Eastern respondents (not in MMT) to say that they would 'definitely' or 'probably' start MMT if they could.

The present study highlights the need for further research in a number of areas if policy is to be improved in this area. Most importantly, we need a better understanding of the factors which inhibit Asian and Aboriginal heroin users from entering treatment. A very high proportion of Asian and Aboriginal heroin users support their addiction through crime. It is therefore imperative to find ways in which to encourage them out of the heroin market. If concern about substituting one addiction for another inhibits entry into treatment, alternative therapies, such as naltrexone, on its own or combined with methadone, may provide a better way of encouraging heroin users to enter treatment.[14] Whether the provision of treatment services which are more responsive to the particular needs and values of Aboriginal and Asian heroin users would also help attract them into treatment is also a potentially fruitful line of inquiry.

We also need a better understanding of the factors which predict return to heroin use. Heroin dependence may be a chronic, relapsing condition but every weekly increment in the time heroin users spend out of the heroin market represents a saving in crime and a reduction in the risk of disease and overdose. The work of Bell et al. (1995) suggests that factors such as adequate dosing of methadone and the provision of social support and counselling services can play a crucial role in keeping heroin users in treatment. The present study found evidence that some heroin users actually report using MMT to *sustain* themselves in the heroin market (see Figure 3). This is utterly counterproductive. Treatment regimes (and their associated support services) need to be designed to attract and keep heroin users out of the heroin market, not to make it easier for them to obtain temporary refuge from the pressures created by drug law enforcement.

Difficult though it is to conduct, further research on the price-elasticity of demand for heroin is also needed. Many health professionals and some policy makers will instinctively regard this as a second order, if not academic issue. It is not. Both State and Federal Governments spend a great deal of money on supply-side enforcement. It is arguable that the sole effect of this investment is to keep the retail price of heroin high relative to its net production and distribution costs. This may be a significant achievement. The present study suggests that the retail price of heroin exerts a strong indirect positive effect on entry into treatment. But there is little point trying to push up or perhaps even maintain the retail price of heroin through supply-side drug law enforcement if this just increases revenues of drug dealers and the amount of crime committed by heroin users to fund their addiction. Research on the price-elasticity of heroin goes to the heart of this issue.

A fourth area where research could assist drug policy is in assessing the cost-effectiveness of prison versus treatment as means of reducing heroin consumption and heroin-related crime. Once again, health professionals and treatment providers might baulk at such a suggestion on the grounds that heroin users deserve treatment rather than punishment. The fact is, however, that few dependent heroin users confine their

illegal activity to violation of the laws regarding heroin possession and use. It is for this reason that many police and policy makers regard imprisonment as a better means by which to curtail both heroin consumption and crime than treatment. If we are serious about harm minimisation and convinced that treatment provides the best means of achieving this objective we ought to be willing to rigorously assess whether community-based treatment offers a more cost-effective way of reducing heroin consumption and crime than locking heroin users up with or without treatment in prison.

Finally, and perhaps most importantly, law enforcement agencies need to develop performance indicators for drug law enforcement which reflect the goals of such enforcement. The practice to date in Australia has been to rely on drug arrests and drug seizures as indices of drug law enforcement success or failure. But drug arrest and seizure rates are, at best, simply measures of the *output* associated with our investment in drug law enforcement rather than measures of its *outcome*. If drug law enforcement is genuinely directed at reducing the aggregate harm associated with illegal drugs, the contribution drug law enforcement policy makes to harm reduction needs to be explicitly identified and monitored. This is nowhere more true than in relation to those harms which drug law enforcement has the potential to exacerbate.

NOTES

1   In what follows the term 'demand' is used in an economic rather than a psychological sense. The 'demand for heroin' is the total quantity of heroin demanded by all those who use heroin, not the average amounts of heroin used by individual heroin users.   As we understand the term, then, the demand for heroin can be reduced either by reducing the quantity demanded by particular individuals or by reducing the number of people who want heroin.

2   Empirical evidence on the issue is scant and does not present a consistent picture, with some studies finding that demand for heroin is only weakly price-elastic and others finding fairly high levels of elasticity.   There is some evidence that the long-run price elasticity of demand for heroin and other addictive drugs may be greater than the short-run price elasticity (see Caulkins & Reuter 1998).   This makes sense because, in the long run, drug prices affect not just how much the average drug user consumes but also the percentage of the population who experiment with the drug.

3   We refer to the establishment of the Police Integrity Commission and the introduction of Operation and Crime Review Panels.   The latter provide the first direct and systematic opportunity for senior police management to discuss operational issues with front-line police.

4   Years of regular heroin use was calculated by subtracting the age of first regular heroin use from the respondent's age at the time of the survey.   For four respondents this calculation produced a negative number; for these four respondents the data for years of regular heroin use was regarded as missing.

5   Approximately 44 per cent of Asian respondents and 41 per cent of Aboriginal respondents not currently in MMT said that they would 'definitely' or 'probably' start MMT tomorrow if they could.   The corresponding percentages for Caucasian and Middle Eastern respondents were 34 per cent and 33 per cent, respectively.

6   Methadone has no effect on bones.   Its adverse effects on teeth were partially resolved some years ago with the removal of sugar from the drug (originally intended to make it more palatable) but because methadone dries the mouth it may increase the risk of gum and tooth disease.

7   Average daily expenditure on heroin was based on the response to Question 9a for those in MMT at the time of the survey and to Question 10a for those not in MMT at the time of the survey.   Hence, for those in MMT at the time of the survey, it was a measure of expenditure on heroin prior to entering treatment.

8   See Note 7.

9   These speculative considerations are raised not in criticism of the proposal to trial a safe injection room.   Such a trial would add to our knowledge about how best to deal with the harm caused by heroin use.   But they do suggest it would be wise not to rely solely on the advent of safe injection rooms as a solution to the public health risks which appear to be created by street-level drug law enforcement.

10   It is important to note here that an increase in demand for heroin does not necessarily require an increase in the number of new users.   A decrease in the rate at which heroin users leave the heroin market would exert the same effect.

11   In fact the offence of self-administration is very rarely laid against injecting drug users in New South Wales.   Last year only 202 people appeared in a NSW Local Court charged with self-administration of a prohibited drug.

12   Further evidence that there is a shortage of MMT can be found in the fact that most MMT clinics have a waiting list.

13   43 per cent of Asian heroin users cited the fact that methadone was addictive as one of the worst things about MMT.   By contrast 26 per cent of heroin users overall cited this as one of its worst features.

14   There has, of course, been considerable controversy of late about the value of naltrexone, especially when employed for so-called rapid detoxification therapy.   No assumption is made here that naltrexone offers a 'miracle' cure for heroin use.   The point is rather that a therapy which offers an alternative to continued drug dependence would seem likely to attract the interest of Asian heroin users in particular.   Whether the therapy is suitable for them (or any other group of heroin user) is a matter we leave to others to judge.

REFERENCES

Australian Bureau of Criminal Intelligence 1999, *Australian Illicit Drug Report 1997-98*, Commonwealth of Australia, Canberra.

Bammer, G. & Weekes, S. 1993, *Becoming and ex-user: Would the controlled availability of heroin make a difference?*, Feasibility Research into the Controlled Availability of Opioids Stage 2, Working Paper Number 4, National Centre for Epidemiology and Population Health, The Australian National University, Canberra.

Belenko, S. 1998, 'Research on Drug Courts: A critical review', *National Drug Court Institute Review,* Issue 1, Virginia, USA.

Bell, J., Ward, J., Mattick, R., Hay, A., Chan, J. & Hall, W. 1995, *An Evaluation of Private Methadone Clinics*, National Drug Strategy Research Report Series, Report No. 4, Commonwealth of Australia, Canberra.

Buerger, M. E. 1992, 'Defensive strategies of the street-level drug trade', *Journal of Crime and Justice*, vol. XV, no. 2, pp. 31-51.

Carroll, K. M. & Roundsaville, B. J. 1992, 'Contrast of treatment-seeking and untreated cocaine abusers', *Archives of General Psychiatry*, vol. 49, June, pp. 464-471.

Caulkins, J. P. 1993, 'Local drug markets' response to focused police enforcement', *Operations Research*, no. 5, September-October, pp. 848-863.

Caulkins J. P. 1992, 'Thinking about displacement in drug markets: Why observing change of venue isn't enough', *The Journal of Drug Issues*, vol. 22, no. 1, pp. 17-30.

Caulkins, J. P. & Reuter, P. 1998, 'What price data tell us about drug markets', *Journal of Drug Issues*, vol. 28, no. 3, pp. 593-612.

Caulkins, J. P., Larson, R. C. & Rich, T. F. 1993, 'Geography's impact on the success of focused local drug enforcement operations', *Socioeconomic Planning Science*, vol. 27, no. 1, pp. 119-130.

Chitwood, D. D. & Chitwood, J. S. 1981, 'Treatment program clients and emergency room patients: A comparison of two drug-using samples', *The International Journal of the Addictions*, vol. 16, no. 5, pp. 911-925.

Chitwood, D. D. & Morningstar, P. C. 1985, 'Factors which differentiate cocaine users in treatment from nontreatment users', *The International Journal of the Addictions*, vol. 20, no. 3, pp. 449-459.

Dobinson, I. & Ward, P. 1984, *Drugs and Crime: A Survey of NSW Prison Property Offenders,* NSW Bureau of Crime Statistics and Research, Sydney.

Dobinson, I. & Ward, P. 1987, *Drugs and Crime: Phase II: A Study of Individuals Seeking Treatment,* NSW Bureau of Crime Statistics and Research, Sydney.

Dobinson, I. & Poletti, T. 1988, *Buying and Selling Heroin: A Study of Heroin User/Dealers,* NSW Bureau of Crime Statistics and Research, Sydney.

Fagan, J. A. 1994, 'Do criminal sanctions deter drug crimes?' in *Drugs and Crime*, eds D. L. MacKenzie & C. D. Uchida, Sage Publications, London, pp. 188-214.

Hall, W., Degenhardt, L. & Lynskey, M. 1999, *Trends in Opioid Overdose & Suicide Mortality in Young Adults in Australia, 1964-1997,* National Drug and Alcohol Research Centre Technical Report no. 67.

Hall, W. 1997, 'The role of legal coercion in the treatment of offenders with alcohol and heroin problems', *Australian and New Zealand Journal of Criminology,* vol. 30, pp. 103-120.

Hall, W. 1996, *Methadone Maintenance Treatment as a Crime Control Measure,* Crime and Justice Bulletin no. 29, NSW Bureau of Crime Statistics and Research, Sydney.

Kleiman, M. 1985, 'Drug enforcement and organised crime', in *The Politics and Economics of Organised Crime,* eds H. E. Alexander & G. E. Caiden, Lexington Books, Massachusetts, pp. 67-87.

Kleiman, M. & Smith, K. D. 1990, 'State and local drug law enforcement: In search of a strategy' in *Drugs and Crime*, eds M. Tonry & J. Q. Wilson, The University of Chicago Press, Chicago, pp. 69-108.

Lee, L. W. 1993, 'Would harassing drug users work?', *Journal of Political Economy*, vol. 101, no. 3, pp. 939-959.

MacCoun, R. & Reuter, P. 1998, 'Drug Control', in *The Handbook of Crime and Punishment*, ed. M. Tonry, Oxford University Press, New York, pp. 207-238.

Maher, L., Dixon, D., Lynskey, M. & Hall, W. 1998, *Running the Risks: Heroin, Health and Harm in South West Sydney,* National Drug and Alcohol Research Centre Monograph no.38, University of NSW, Sydney.

Maher, L., Dixon, D., Swift, W. & Nguyen, T. 1997, *Anh Hai: Young Asian Background People's Perceptions and Experiences of Policing,* University of New South Wales Faculty of Law, Research Monograph Series, Sydney.

Makkai, T. 1999, 'Harm reduction in Australia: Politics, policy and public opinion', in *Harm Reduction and Drug Control: Concepts and Policies,* eds J. Inciardi & L. Harrison, Sage Publications, California, in press.

Manning, P. K & Redlinger, L. J. 1978, 'Invitational edges of corruption: Some consequences of narcotic law enforcement' in *Policing: A View from the Street*, eds P. K. Manning & J. Van Maanen, Random House, New York.

Ministerial Council on Drug Strategy 1998, *National Drug Strategic Framework: 1998-99 to 2002-03,* November, Canberra.

Moore, M. H. 1972, 'Policies to achieve discrimination in the effective price of heroin', *American Economic Review*, vol. 63, no. 2, pp. 270-277.

NSW Government 1999, *NSW Drug Summit 1999: Government Plan of Action*, NSW Government, Sydney.

Rasmussen, D. W., Benson, B. L. & Sollars, D. L. 1993, 'Spatial competition in illicit drug markets: The consequences of increased drug law enforcement', *Review of Regional Studies*, vol. 23, no. 3, pp. 219-236.

Rosenblum, A., Magura, S. & Joseph, H., 1991, 'Ambivalence toward methadone treatment among intravenous drug users', *Journal of Psychoactive Drugs,* vol. 23, no. 1, pp. 21-27.

Schultz, C. G., Raipiti, E., Vlahov, D. & Anthony, J. C. 1994, 'Suspected determinants of enrollment into detoxification and methadone maintenance treatment among injecting drug users', *Drug and Alcohol Dependence*, vol. 36, pp. 129-138.

Skolnick, J. H. 1975, *Justice Without Trial: Law Enforcement in a Democratic Society*, 2nd edn, John Wiley, New York.

Wagstaff, A. & Maynard, A. 1988, *Economic Aspects of the Illicit Drug Market and Drug Enforcement Policies in the United Kingdom,* Home Office Research Study no. 95, London.

Weatherburn, D. & Lind, B. 1997, 'The impact of law enforcement activity on a heroin market', *Addiction*, vol. 92, no. 5, pp. 557-569.

Weisburd, D. & Green, L. 1995, 'Policing drug hot spots: The Jersey City drug market analysis experiment', *Justice Quarterly*, vol. 12, no. 4, pp. 711-735.

Williams, P. 1997, *Progress of the National Drug Strategy: Key National Indicators,* Department of Health and Family Services, Commonwealth of Australia, Canberra.

Wood, J. R. T. 1997, *Royal Commission into the New South Wales Police Service: Final Report*, Royal Commission into the New South Wales Police Service, Sydney.

Worden, R. E, Bynum, T. S & Frank, J. 1994, 'Police crackdowns on drug abuse and trafficking', in *Drugs and Crime*, eds D. L. MacKenzie & C. D. Uchida, Sage Publications, London, pp. 95-113.

APPENDIX A:

QUESTIONNAIRE

Interviewer's name: ....

First name: .... Date of birth: ..../........../.........   Date of interview: ..../........./..........

✂ —

STREET-LEVEL LAW ENFORCEMENT
AND
TREATMENT STUDY INTERVIEW SCHEDULE

Section A: This section to be completed by everyone

Q.1   **Gender**
(1 = male, 2 = female)

Q.2   **What year were you born in?**

Q.3   **What is your marital status?**
(1 = married / defacto, 2 = single)

Q.4   **How many children live at home with you** *(own children or partner's children)*?
(0 = 0, 1 = 1, etc)

Q. 5   **What is your ethnic background?**
(write)

....

Q.6   **How old were you when you first used heroin?**
(years)

Q.7   **How old were you when you started using heroin regularly?**
(i.e. every day or almost every day)

Q.8   **Are you on a methadone maintenance program?**
(1 = yes, 2 = no)

☞ IF YES,

    Q.9   **Before you started on methadone how were you using heroin?**
        (1 = inject, 2 - smoke / chase / inhale, 3 = other)

    Q.9a   **What was your average daily expenditure on heroin before entering methadone treatment?** $

    Q.9b   **What is your average daily expenditure on illegal drugs now?** $

☞ IF NO,

    Q.10   **How do you usually use heroin?**
        (1 = inject, 2 - smoke / chase / inhale, 3 = other)

    Q.10a   **What is your average daily expenditure on heroin?** $

Q.11   **How long have you been on methadone this time?**
(1 = entering now, 2 = - 3 months, 3 = >3 - 6 months, 4 = >6 months)

Q.12   **What is/was your main source of income to purchase heroin?**
(see card)

Q.13   **In the last six months how often have you been
stopped by the police for drug-related offences?
(e.g. drug using, drug selling or crime committed to get drugs)**
(see card)

Q.14   **Have you ever been arrested by police for a drug-related offence?
(e.g. drug using, drug selling or crime committed to get drugs)**
(1 = yes, 2 = no)

Q.15   **Have you ever been imprisoned for a drug-related offence?
(e.g. drug using, drug selling or crime committed to get drugs)**
(1 = yes, 2 = no)

Q.16   **Have the police ever caught or interrupted you while you were using heroin?**
(1 = yes, 2 = no)

☞ **IF NO, GO TO Q.20**

Q.17   **Were you smoking or injecting it at the time?**
(1 = smoking, 2 = injecting)

Q.18   **What did the police do?**
(Probe: Destroy injection equipment? Confiscate it? Location?)

....
....
....
....
....

Q.19   **How long ago did this happen?**
(code number of months)

Q.20   **Do/did you usually use heroin in a place where you feel safe from the police?**
(1 = yes, 2 = no)

☛ IF YES,

How often do/did you inject without using a swab? *(see card)*

How often do/did you inject without using a tourniquet? *(see card)*

How often do/did you discard your syringe quickly? *(see card)*

How often do/did you use a syringe before or after someone else? *(see card)*

☛ IF NO,

**To avoid being caught by the police,
how often do/did you inject without using a swab?** *(see card)*

**To avoid being caught by the police,
how often do/did you inject without using a tourniquet?** *(see card)*

**To avoid being caught by the police,
how often do/did you discard your syringe quickly?** *(see card)*

**To avoid being caught by the police,
how often do/did you use a syringe before or after someone else?** *(see card)*

Additional comments: ....

....

....

....

Q.21   **Have any of your friends gone to prison for a drug related offence?**
(1 = yes, 2 = no)

Q.22   **Have any of your family gone to prison for a drug related offence?**
(1 = yes, 2 = no)

Q.23   **Where do you usually score your heroin?**
(1 = on the street, 2 = off the street)

Details (including suburb): ....

....

Q.24   **How risky is it trying to score heroin?**
(see card)

Q.25   **Do you have any court cases pending for a drug-related offence?
(e.g. drug using, drug selling or crime committed to get drugs)**
(1 = yes, 2 = no)

Q.26 **Do you have a close friend who is a regular user of heroin?** ☐
(1 = yes, 2 = no, 3 = no close friends)

Q.27 **Do you have a family member who is a regular user of heroin?** ☐
(1 = yes, 2 = no)

Q.28 **Do you have any close friends who are NOT heroin users?** ☐
(1 = yes, 2 = no, 3 = no close friends)

Q.29 **Have any of your friends died from an overdose or a drug-related disease/illness?** ☐
(1 = yes, 2 = no)

Q.30 **Have you ever overdosed on heroin?** ☐
(1 = yes, 2 = no)

Q.31 **Do you think you have any drug related health problems?** ☐
(1 = yes, 2 = no, 3 = don't know)

Q.32 **Do you have any close friends on methadone at the moment?** ☐
(1 = yes, 2 = no, 3 = no close friends)

Q.33 **How many times have you been on methadone before?** ☐
(0 = 0, 1 = 1, etc)

Q.34 **What are the best things about methadone treatment in your opinion?** ☐
(open ended)

....
....
....
....
....

Q.35 **What are the worst things about methadone treatment in your opinion?** ☐
(open ended)

....
....
....
....
....

Section B: This section to be completed by those on MMT.

Q.36 **When you were deciding to start methadone treatment how important were these reasons to you?**
(see card)

I wanted to reduce my involvement in crime ☐

I wanted to avoid more trouble with the police/courts ☐

I wanted to spend less money on heroin ☐

I wanted to be able to keep my relationship/family together ☐

This section to be completed by those who are NOT on MMT

Q.37 **If you could start methadone tomorrow would you?** ☐
(see card)

☞ IF 3 OR 4, THEN GO TO Q.39

Q.38 **Is the waiting list stopping you?** ☐
(1 = yes, 2 = no)

Q.38a **Are there any other reasons stopping you?**
(details)

....

....

....

....

....

Q.39 **What is the main reason you don't want to go on MMT?**
(details)

....

....

....

....

....

Q. 12

1 = drug selling

2 = shoplifting

3 = break & enter

4 = armed robbery

5 = other property crime

6 = social security

7 = employment

8 = sex work

9 =   hocking or selling
      own possessions

10 = other ...?

Q. 13

1 = at least once per day

2 = at least once per week

3 = at least once per month

4 = less than once per month

5 = once only

6 = never

Q. 20

1 = often

2 = sometimes

3 = never

Q. 24

1 = not very risky

2 = fairly risky

3 = very risky

4 = don't know

Q. 36

1 = very important

2 = important

3 = not very important

4 = not applicable

Q. 37

1 = definitely

2 = probably

3 = probably not

4 = definitely not

APPENDIX B

TABLES SHOWING SIGNIFICANT BIVARIATE ASSOCIATIONS OF CONTROL VARIABLES WITH EVER BEING IN MMT

Table B.1: Living with own or partner's children

	Ever in MMT		Never in MMT		Total	
Living with child(ren)	*No.*	*%*	*No.*	*%*	*No.*	*%*
Yes	80	81.6	18	18.4	98	100.0
No	258	62.6	154	37.4	412	100.0

Note: Missing data for 1 respondent. $X^2 = 12.8$, 1 d.f., $p < 0.001$

Table B.2: Where usually score heroin

	Ever in MMT		Never in MMT		Total	
Where usually score heroin?	*No.*	*%*	*No.*	*%*	*No.*	*%*
On street	130	60.5	85	39.5	215	100.0
Off street	203	71.2	82	28.8	285	100.0

Note: Missing data for 11 respondents. $X^2 = 6.4$, 1 d.f., $p = 0.012$

Table B.3: Close friend who uses heroin

	Ever in MMT		Never in MMT		Total	
Friend who uses heroin?	*No.*	*%*	*No.*	*%*	*No.*	*%*
Yes	262	63.7	149	36.3	411	100.0
No	77	77.0	23	23.0	100	100.0

$X^2 = 6.3$, 1 d.f., $p = 0.012$

Table B.4: Overdose

	Ever in MMT		Never in MMT		Total	
Ever overdosed?	*No.*	*%*	*No.*	*%*	*No.*	*%*
Yes	163	73.1	60	26.9	223	100.0
No	176	61.1	112	38.9	288	100.0

$X^2 = 8.1$, 1 d.f., $p = 0.004$

Table B.5: Friend died from overdose or drug-related illness

	Ever in MMT		Never in MMT		Total	
Friend died?	No.	%	No.	%	No.	%
Yes	229	71.6	91	28.4	320	100.0
No	110	57.6	81	42.4	191	100.0

$X^2 = 10.5$, 1 d.f., $p = 0.001$

Table B.6: Close friend on methadone

	Ever in MMT		Never in MMT		Total	
Friend in MMT?	No.	%	No.	%	No.	%
Yes	235	71.9	92	28.1	327	100.0
No	104	56.8	79	43.2	183	100.0

Note: Missing data for 1 respondent.

$X^2 = 11.9$, 1 d.f., $p = 0.001$

Table B.7: Ethnicity

	Ever in MMT		Never in MMT		Total	
Ethnicity	No.	%	No.	%	No.	%
Asian	44	43.6	57	56.4	101	100.0
Caucasian	209	77.1	62	22.9	271	100.0
Middle Eastern	28	65.1	15	34.9	43	100.0
Aboriginal	42	57.5	31	42.5	73	100.0
Islander	4	44.4	5	55.6	9	100.0
Other	12	92.3	1	7.7	13	100.0

Note: Missing data for 1 respondent.

$X^2 = 46.1$, 5 d.f., $p < 0.001$

Table B.8: Age

	Ever in MMT		Never in MMT		Total	
Age group	No.	%	No.	%	No.	%
15-19	35	38.5	56	61.5	91	100.0
20-24	94	60.3	62	39.7	156	100.0
25-29	89	74.2	31	25.8	120	100.0
30-34	56	88.9	7	11.1	63	100.0
35-39	36	75.0	12	25.0	48	100.0
40+	29	87.9	4	12.1	33	100.0

$X^2 = 60.4$, 5 d.f., $p < 0.001$

Table B.9: Years since first used regularly

Years of regular use	Ever in MMT No.	%	Never in MMT No.	%	Total No.	%
0	12	34.3	23	65.7	35	100.0
1-2	73	54.5	61	45.5	134	100.0
3-5	100	67.1	49	32.9	149	100.0
6-10	72	72.0	28	28.0	100	100.0
11-15	44	91.7	4	8.3	48	100.0
16+	35	85.4	6	14.6	41	100.0

Note: Missing data for 4 respondents.

$X^2 = 46.4$, 5 d.f., $p < 0.001$

Table B.10: Average daily expenditure on heroin

Average daily expenditure	Ever in MMT No.	%	Never in MMT No.	%	Total No.	%
$50 or less	50	53.2	44	46.8	94	100.0
$51 - $100	103	64.4	57	35.6	160	100.0
$101 - $500	169	71.3	68	28.7	237	100.0
more than $500	13	86.7	2	13.3	15	100.0

Note: Missing data for 5 respondents.

$X^2 = 12.9$, 3 d.f., $p = 0.005$

APPENDIX C

MODELS SHOWING THE EFFECT OF ARREST AND IMPRISONMENT ON EVER BEING IN MMT, WITH AGE AND YEARS OF REGULAR HEROIN USE EXCLUDED FROM THE SET OF CONTROL VARIABLES

Table C.1: Model for *ever in MMT* with arrest and reduced set of control variables as predictors

Variable	Parameter estimate	Standard error	p-value	Odds ratio	CI lower limit	CI upper limit
Intercept	0.8090	0.3823	0.0343			
Arrest	0.5734	0.2455	0.0195	1.774	1.097	2.876
Living with child	1.1735	0.3433	0.0006	3.233	1.694	6.551
Income: crime v. other	-0.6882	0.2553	0.0070	0.502	0.302	0.824
Score on street v. off street	-0.5048	0.2242	0.0243	0.604	0.388	0.936
Friend who uses	-1.0052	0.3126	0.0013	0.366	0.194	0.664
Friend in MMT	0.5841	0.2305	0.0113	1.793	1.142	2.824
Ethnicity						
Asian v. Caucasian	-1.3078	0.2804	0.0001	0.270	0.155	0.467
Middle Eastern v. Caucasian	-0.8692	0.3976	0.0288	0.419	0.194	0.928
Aboriginal v. Caucasian	-1.1481	0.3179	0.0003	0.317	0.169	0.591
Other v. Caucasian	-0.2301	0.5677	0.6853			
Avge daily heroin expenditure						
$51-100 v. $50 or less	1.0763	0.3199	0.0008	2.934	1.576	5.536
> $100 v. $50 or less	1.3798	0.3203	0.0001	3.974	2.136	7.518

Note: CI = 95% confidence interval.   Number of observations: 489   Deviance = 518.0, 476 d.f.