

If drug treatment works so well, why are so many drug users in prison?#

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A major component of the relentless growth in the U.S. incarcerated population over the last 35 years has been the increase in the number imprisoned for drug offenses (Blumstein and Beck, 1999), a figure that rose from 42,000 in 1980 to 481,000 in 2002 (Caulkins and Chandler, 2006). Most of this incarceration burden falls on people who were involved in supplying drugs, albeit sometimes in minor roles (Sevigny and Caulkins, 2004). In addition, a large number of those incarcerated for both drug and non-drug offenses have drug use disorders. Many are dependent on cocaine, heroin, or methamphetamine and there is reasonable evidence that their drug use has a causal role in their criminality.

An array of programs have developed over the last twenty years based on the well-documented premise that reducing drug use leads to large reductions in the individual offender's crime rate. The list of programs includes drug courts, other forms of diversion from the criminal justice system into treatment (e.g., Prop 36 in California), intensive probation supervision and in-prison treatment. All these aim to reduce the extent of criminality among those who have already developed drug abuse or dependency by encouraging/coercing offenders into treatment. A substantial research literature shows that treatment does reduce both drug use and associated criminal activity. In addition to such programs, there is growing recent interest in "coerced abstinence" interventions, whereby drug-involved offenders under criminal justice supervision in non-incarcerated settings (parole, probation and pre-trial supervision) are subject to short, immediate and graduated penalties for detected drug use (Kleiman, 2009).

Despite this array of efforts, there has been no decline in the incarceration of drug users for either drug offenses or for other criminal activities. The number incarcerated for drug offenses has increased every year since 1980 (Caulkins and Chandler, 2006).

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We show later in this paper that the number of prisoners with drug problems has also increased substantially from 1986 to 2004, extending analyses of CASA (2002) and Mumola and Karberg (2006). Both of these findings are rather surprising, since the number of individuals with expensive illegal drug habits was estimated to have declined in the period 1988-2000, the most recent year for which a published estimate is available (ONDCP, 2001), and there are some indicators that the decline may have continued. This would suggest that there are fewer sellers as well as fewer users to lock up.

We hypothesize that there are two principal reasons for the continued large numbers flowing into incarceration: First, eligibility criteria for these diversion programs, particularly for drug courts, are so restrictive that, though the various programs are effective and even cost-effective with the clients they recruit, they make little contribution at the population level. The diverted offenders are at low risk of going to prison or even jail (following sentencing, as opposed to pre-trial) in absence of the drug court intervention. Second, as criminally active drug users age the system treats them increasingly harshly for each successive offense; they have longer criminal histories, longer records of unsuccessful treatment and worse employment histories. Thus, these offenders receive longer sentences, increasing the share of the incarcerated population with drug problems.

This paper will focus on the first of these conjectures. In particular, we examine what share of those currently incarcerated would have been eligible for drug courts with the least restrictive entry criteria. We have not been able to find data that allows testing of the effect of the lengthening criminal careers of dependent drug use.

To test the hypothesis about the effect of drug courts we make use of the Survey of Inmates in State and Federal Correctional Facilities (SISFCF) and the Survey of Inmates in Local Jails (SILJ), two Bureau of Justice Statistics occasional surveys. Both provide self-reports on, *inter alia*, criminal activity and substance use from nationally representative samples of inmates; the Prison survey has been conducted six times between 1974 and 2004 (with federal inmates surveyed only in the 1997 and 2004 studies), while the Jail survey has been conducted six times between 1972 and 2002. We find that, indeed, very few of those entering state prison in 2004 or jail in 2002 would have been eligible for diversion through state courts. That this is true for local jails is

much more surprising than the prison finding but is also a reminder that, even late in the incarceration boom, it is not so easy to get incarcerated, conditional on arrest.

There are two reasons for the findings about drug courts. First, many entering prison in 2004 (whether drug users or not) were on supervised release (parole or probation) at the time of their latest arrest, which automatically made them ineligible for most drug court interventions. Second, and more interestingly, most of those who were arrested *do novo* and who had drug use patterns making them potential clients for drug court, had long, relatively serious criminal records that would have made them ineligible under current conditions. Drug use itself may lead to more intense or longer criminal careers. Moreover, many of those dependent on expensive drugs (cocaine, crack, heroin and methamphetamine) became drug users a long time ago. These populations are aging, which is not true of non drug-using criminal offenders. In effect, what we are seeing is two distinct trends in the incarcerated population, separated by drug use.

We also present three other policy-relevant descriptive findings.

- First, it is useful to compare the number of dependent drug users entering treatment with the number entering prison. Both in 1986 and 2004, these figures are approximately comparable; the U.S. is locking up as many drug addicts as it is treating, a troubling observation about the nation's drug policies.
- Second there are indications that drug dependence is less prevalent among younger offenders than in cohorts that are twenty years older. Absent a new drug epidemic or a newly invigorated drug war, there is a predictable end in sight to the growth of drug-related prisoners.
- Third, for drug using prisoners, the probability of a violent offense declines sharply with age after 35.

This last observation leads us to our principal policy suggestion, which needs further investigation. Diversion programs of all kinds require substantial redesign if they are to contribute to a reduction in the incarcerated population. Experienced drug users, who account for an increasing share of drug-related crime, are not attractive (or eligible) candidates for many current efforts. However if one is willing to take a very long-term social welfare perspective, it may be worth introducing courts specifically designed for

the long-term user. Our finding that aging drug users commit relatively few violent crimes is helpful here. The risks associated with treatment-oriented community supervision of older offenders are therefore less than one likely encounters in younger drug-using cohorts.

Background: The changing demography of drug abuse

The dynamics of drug-related incarceration in the U.S. should be examined in light of broader societal trends in drug use and dependence over the last forty years. The characteristics of the drug using population, particularly those dependent on expensive drugs, has changed in ways that complicate the task of keeping criminally active drug users out of prison.

Drug Epidemics

The nation has experienced four major drug-specific epidemics in that period; heroin (roughly 1968-73), cocaine powder (ca. 1975-1985), crack cocaine (ca.1982-1988), and methamphetamine (ca.1990-2000). In an epidemic process, rates of initiation rise sharply as new and highly contagious users of a drug initiate friends and peers, a model first well developed by Hunt and Chambers (1976).

In the case of heroin, there is much evidence of a sudden elevation of initiation rates during the late 1960s and early 1970s, followed by a rapid incidence decline over the 1970s and 1980s (Kozel and Adams, 1986). Rocheleau and Boyum (1994), in an early 1990s sample of street heroin users, also found evidence of much higher initiation rates in the early 1970s than in the following two decades. For cocaine powder the decline is not so pronounced as with heroin (Everingham and Rydell, 1994). In a recent paper, Caulkins et al. (2004) reported estimates of annual cocaine initiation using NHSDA and a variety of methods; all show a peak in 1980 followed by a decline of two thirds in the next five years. For crack cocaine the epidemic was still later, starting between about 1982 and 1986, depending on the city (Cork, 1999).

A new class of epidemiologic models has been developed by Caulkins and collaborators (e.g. Caulkins, 2007; Caulkins et al., 2004) which use diverse data to document the long trajectory of drug epidemics. After the peak, the initiation rate does not return to its original zero level but falls to a rate well below the peak. Under

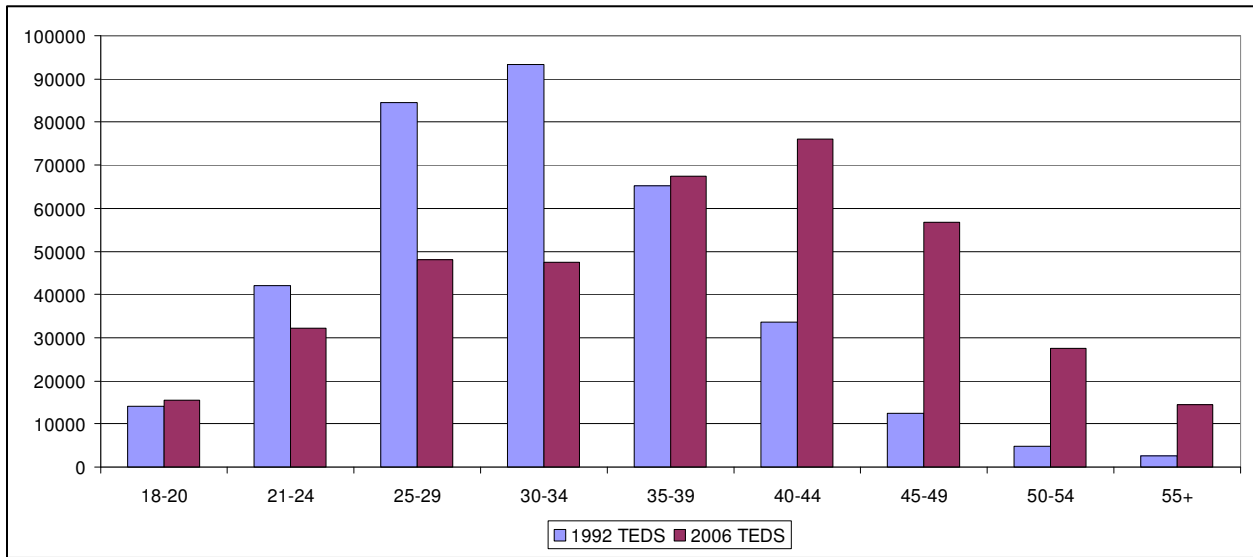
reasonable assumptions, the result is a flow of new users who do not fully replace those lost through desistance, death, or incarceration. Thus, the number of active users declines over time. Moreover, the drug-using population ages with corresponding changes in the health, employment, and crime consequences of substance use.

Some evidence for this characterization can be seen in the changing characteristics of drug users TEDS (the Treatment Episode Data System) which includes data on admissions to treatment programs that receive federal funds. We do not report changes in the National Household Survey on Drug Abuse/National Survey on Drug Use and Health because these include so few dependent users.¹

For TEDS we are able to compare the admissions cohort of 1992 with that of 2006; these two years are the earliest and latest for which detailed data are available. By 1992 all but the methamphetamine epidemics had run their course but the cocaine and crack epidemics were relatively recent, so many of the users showing up for treatment were still young adults. Figure 1, computed using 1992 and 2006 TEDS data, displays changes in the age distribution of adult clients admitted into substance abuse treatment who reported cocaine-related disorders.

Figure 1. Age Distribution of TEDS Cocaine Admissions, 1992 and 2006

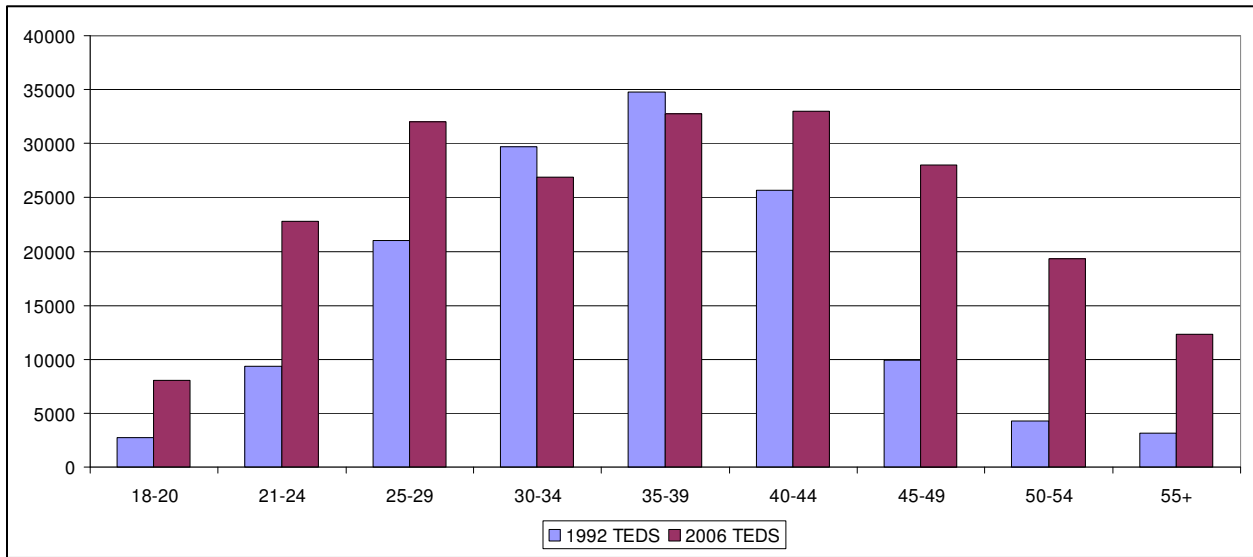
¹ For example, in 2000, the NHSDA estimated that 1.2 million individuals had used cocaine in the previous month. By comparison more broad based estimates that included ADAM estimated a total of approximately 2 million met the more stringent requirement of having used the drug more than 8 times in the 30 days prior to the interview. The differential for heroin was similar. (Boyum and Reuter, 2005; p.18)



In the 1992 data, 40% of these clients were under the age of 30. By 2006, that figure had dropped to 26%. The fraction of clients over the age of 40 rose from 15% to 47% over the same period. This was not the consequence of an epidemic of new use among older individuals; rather it represented the aging of those who were caught in the earlier epidemics.

We observed a more complex pattern within the population of admitted heroin users. As shown in Figure 2 below, the over-45 population displayed a similar pattern to that found in the population of cocaine users. Yet there was also a substantial population of admitted heroin users below the age of 30.

Figure 2. Age Distribution of TEDS Heroin Admissions, 1992 and 2006



The contrast between heroin and cocaine is shown in Figure 3, which plots the year of first use for all admitted patients. Year of first use among cocaine patients showed a strong peak in the mid-to-late 1980s, along with a more recent peak that may correspond to newly-dependent users. In contrast, the trend for heroin users suggests a steady and rapid rise in the number of initiates each year from 1980 onwards, so that the number of 2005 treatment clients who began use in 2000 is almost three times the number who began use in 1980. Over time, the highly-peaked incidence of the late 1960s and early 1970s accounts for a shrinking proportion of the overall population of admitted patients.

The Drug Abuse Warning Network (DAWN) shows similar patterns of the aging of cocaine and heroin users appearing in Emergency Departments or as overdoses examined by Medical Examiners, through 2002.

The result of this epidemiology is that the age structure of drug abuse² has changed substantially. Prior to 1986 (the year of the first Survey of Inmates that we analyze), there were not only relatively few drug abusers but they were young and primarily heroin users. By 2004, the year of the most recent survey, there were not only many more but they were a great deal older, had been using for many years and included more drugs as the primary drug of abuse.

² We use the term “drug abuse” somewhat loosely to denote individuals who meet screening criteria for abuse or dependence disorders.

Figure 3. Year of First Use for Cocaine and Heroin Users Entering in 2005

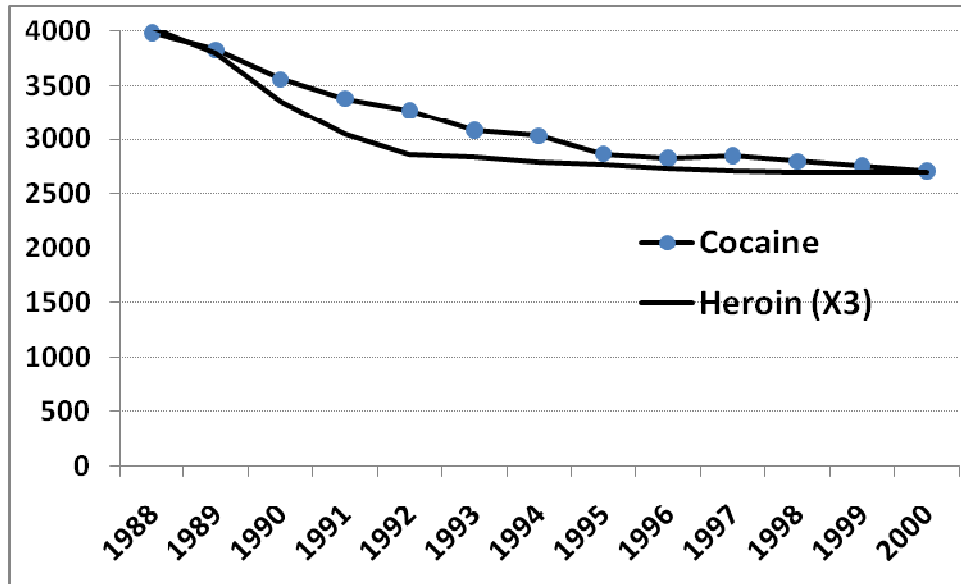
Interpretation of these treatment “year of first use” numbers is complicated by the dynamics of drug using careers. For example, members of the 1980 initiate cohort are more likely than their year-2000 counterparts to have died and perhaps to have desisted. Other heroin users may have enrolled in long-term methadone maintenance and thus may not appear in the population of new treatment admissions. As discussed below, incarceration in state prison also reduces the number of older users eligible for TEDS entry.³ These uncertainties suggest the need for analysis of multiple populations and longitudinal datasets, as well as the need for explicit statistical modeling and simulations to scrutinize implications of changing population dynamics and initiation patterns for the current drug-dependent population.

Despite these empirical gaps and uncertainties, available data suggest that current service utilization reflects the long-term reverberation of specific epidemics of cocaine and heroin use in the United States. They also matter for the criminal justice system.

The only published estimates of the numbers of dependent cocaine and heroin users cover the period 1988-2000 (ONDCP, 2001). Figure 4 presents these figures, which rely heavily on ADAM, showing a substantial decline, about one-third for each drug, over these 12 years. Both the data and the estimation methodology are weak, as indicated by the frequent adjustment in single year estimates in successive series published by the same research group over the period 1995-2000. For example, the immediately preceding version of the estimates (ONDCP, 2000) had shown an increase in heroin use in the early 1990s, followed by a rapid decline.

Figure 4. Number of Chronic Cocaine and Heroin Users (in thousands), 1988-2000

³ TEDS does include those in treatment in prison. However CASA (2002) shows that the share of drug dependent prisoners receiving treatment is only about 13% and much of what they receive barely meets the operational definition of treatment.



Source: *What America's Users Spend on Illicit Drugs 1988-2000*

Some of the decline in these estimates may represent the consequence of increased incarceration, since those in prison are not eligible for the ADAM sampling frame. Assume for the purposes of a rough calculation, that the share of state prison inmates who would be classified as cocaine- or heroin-dependent before prison entry rose from 40% of the 557,000 in 1988 to 50% of the 1,182,000 in 2000⁴. That would have taken an additional 300,000 dependent cocaine and heroin users out of the pool on which these estimates are based. Other trends may also account for some of the observed decline. For example, approximately 200,000 injection drug users died of AIDS over the course of the HIV epidemic. Although these trends are critically important for many reasons, they account for only a small fraction of the total decline (from 5.2 million in 1988 to 3.3 million in 2000). The best interpretation of the available data is that the number of individuals dependent on or abusing expensive drugs has been declining for a long period. The population of such users has aged, presumably reducing their involvement in violent crime.

Drug Treatment

⁴ The calculation is done only for state prisoners because (a) jail inmates serve short terms on average and are eligible within the year for rearrest and ADAM inclusion and (b) federal inmates include a large fraction of nonresident offenders.

Though the research has been severely critiqued by the National Research Council (Manski, Pepper and Petrie, 2001), a substantial body of evidence indicates that drug treatment has large effects on drug use and crime, at least while the user is in treatment. For example, Ammato et al. (2005) found that methadone maintenance therapy reduces criminality by as much as 60%. The findings from the long-term cohort study of heroin users (Hser, Grella and Anglin, 2001) finds similar results for a particularly recalcitrant heroin using population. In the case of cocaine, a meta-analysis of research on interventions aimed at dependent users of a variety of drugs, few of whom were in methadone maintenance, found that those in treatment were about 20% more likely to have positive outcomes with respect to criminality than those who did not enter treatment (Prendergast et al., 2002). Even though most who enter treatment will relapse to drug use and/or fail to complete their treatment, it is still true that treatment can make a large difference in the lifetime drug use and criminality of a dependent user.

As shown in Table 1, the number of individuals in drug treatment for cocaine or heroin abuse has risen slightly since 1997; e.g. TEDS data indicate admissions of 235,000 in 1997 for heroin, compared to 245,000 in 2005. Given that the estimated size of the population of dependent users has if anything shrunk, this indicates that the treatment fraction has increased. The figure for methamphetamine admissions almost tripled during the same period. Estimates for the number of individuals with methamphetamine problems rose over that period but not by as much as treatment admissions.⁵ The percentages in Table 1 refer to admissions for all substances, including alcohol.

⁵ The same pattern can be seen in the earlier cocaine epidemic. Treatment admissions rose sharply during an intermediate phase of the epidemic, after initiation had declined precipitously but before the number of dependent users had begun to decline.

Table 1. Treatment Admissions for Cocaine, Heroin, Marijuana and Methamphetamine, TEDS 1997 and 2006

| | 1997 (number) | 1997 (%) | 2006 (number) | 2006 (%) |
|------------------------|----------------------|-----------------|----------------------|-----------------|
| Cocaine | 236,770 | 15 | 250,135 | 14 |
| Heroin | 235,143 | 15 | 245,984 | 14 |
| Marijuana | 197,840 | 12 | 289,988 | 16 |
| Methamphetamine | 53,694 | 3 | 149,415 | 8 |

Drug Use and Crime

The criminally active population continues to show high rates of drug use, another indication that treatment has, at the population level, failed to reduce the connection between crime and drug use.

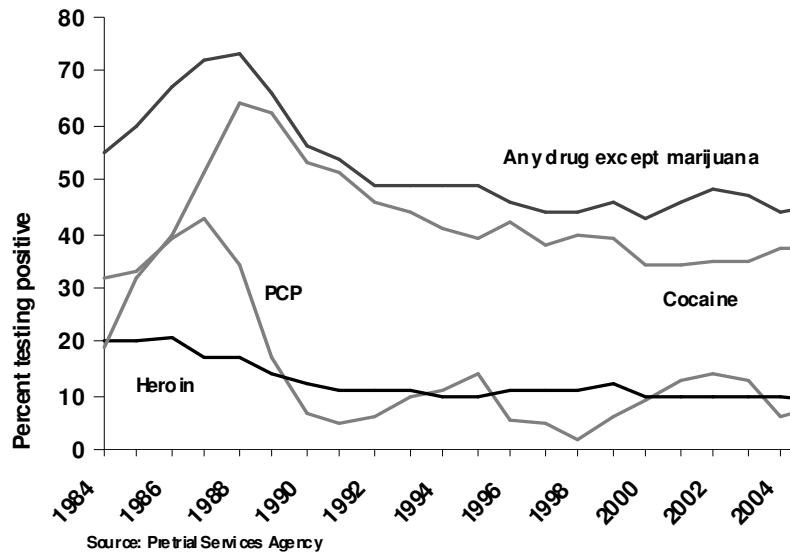
For this population, ADAM provides the major source for insights into the connection between crime and drug use. As noted above, ADAM includes data on drug use, both through interview and urinalysis, from a sample of arrestees in a number of counties around the country. Prior to 1998 we must rely on DUF (the Drug Use Forecasting) system, a statistically more primitive version of ADAM but one which turns out to provide data of comparable quality. When ADAM was operating most broadly, from 1998 to 2003, the data were collected in 35 counties. Data were not collected from 2003 to 2006, and since 2007 have been collected in only 10 counties (Office of National Drug Control Policy, 2009). Thus ADAM provides an incomplete depiction of drug use among the arrested population nationally, particularly since 2003; city level comparisons are more appropriate for comparing trends over time.

The most recent ADAM results show that use of cocaine, heroin and methamphetamine continues to be common among arrestees in most cities. The percentage testing positive for cocaine varied between a high of 44% and a low of 17%. Figures for heroin were lower, but were still as high as 29% for Chicago, twice as much as the next highest city.

For our purposes the more relevant comparisons are between 1986 and 2004, the era covered by the two inmate surveys we analyzed. DUF started collecting data in 1987 in just 21 cities (Wish and Gropper, 1990). More complete and consistent data are

available from Washington, DC, which has collected urinalysis on all adult arrestees since 1984 and on all juvenile arrestees since 1988. The adult data (Figure 5) show that the percentage of all arrestees testing positive for any drug excluding marijuana declined from 73% in 1987 to 49% in 1991,⁶ with a stable trend over the following 15 years.

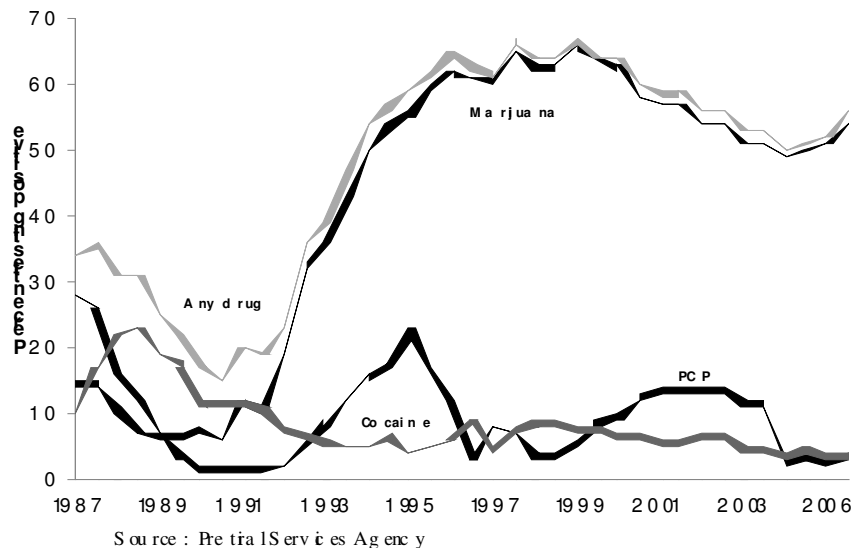
Figure 5. Arrestees Testing Positive for Various Drugs in the District of Columbia, 1984-2007



For juvenile arrestees (Figure 6) what is striking is how few have tested positive for any drug other than marijuana and PCP since the early 1990s; whereas in 1987 23% tested positive for cocaine, that figure has hovered around 7 percent since 1993.

⁶ Most of the late 1980s decline was the result of an abrupt reduction in the percentage testing positive for PCP, a drug that has been much more prevalent in Washington than any other city, even after the decline.

Figure 6. Drug Use among Arrestees Under Age 18, the District of Columbia, 1987-2007



Getting Offenders into Treatment

As already noted, the insight that drug treatment could reduce both crime and the demands on the criminal justice system has animated policy for a long time, not just in the United States but in other countries. For example, the United Kingdom saw a near doubling of the population in treatment between 1998 and 2006, largely as a consequence of a large variety of criminal justice diversion programs (Reuter and Stevens, 2007). We identify here just the major interventions.

Drug courts aim to use the coercive power of the criminal justice system, particularly the authority of a judge, to persuade drug-involved offenders to cease their drug use rather than face penalties for violating the terms of their release. Drug court clients are encouraged to seek treatment, and continued participation in treatment may be a condition for staying out of jail. The evaluation literature, though not technically strong, has generally found positive effects on recidivism, the usual outcome measure (e.g., Belenko, 2001; Wilson, Mitchell and Mackenzie, 2006).

Even though the drug court movement is almost 20 years old and over 2,300 separate programs have been created (BJA (2009), a 2008 study estimated that only 55,000 drug involved defendants were processed in such courts in the middle of this decade; the same study estimated that over one million such defendants entered the

criminal justice system each year (Bhati, Roman and Chalfin, 2008). Despite the rapid expansion of drug courts, the number of defendants who pass through such programs remain relatively low.

This small number of enrollees arises from several factors, including limited administrative capacity to implement drug courts at-scale in many jurisdictions. Even if such administrative capacity were available, enrollment would remain sharply constrained by current eligibility restrictions. Despite the pervasiveness of the drug treatment court model, drug courts routinely exclude most of the drug using offenders. A survey of adult drug courts in 2005 (Rossman et al 2008) found that only 12% of drug courts accept clients with any prior violent convictions. Individuals facing a drug charge, even if the seller is drug-dependent, are excluded in 70% of courts for misdemeanor sales and 53% of courts for felony sales. Other charges that routinely lead to exclusion include property crimes commonly associated with drug use (theft, fraud, prostitution), , and current domestic violence cases (only 20% accept domestic violence cases)” (Bhati, Roman and Chalfin, 2008, p.7). An earlier study conducted by the Government Accountability Office (1997) found that only 6% of drug courts accept offenders whose current conviction included a violent offense.

A study of drug courts in six Washington state counties (Cox et al., 2001) found substantial variation in the eligibility requirements. In King County, for example, only defendants facing drug possession charges were eligible; whereas in Pierce County a long list of property crimes were also eligible. Similarly, Florida’s Dade County accepts offenders with mainly possession or purchase of a controlled substance charges. Marion County stipulates that eligible offenders must be charged with nonviolent drug offenses, with some drug sale and domestic violence cases considered (Supreme Court Task Force, 2004). Among the seven drug courts in the New York City, three accept offenders facing drug sales charges, while four do not. Only one court of the seven accepts defendants with non-drug felony charges (D.C. Drug Court Initiative Annual Report, 2004).

To be sure, drug courts originally targeted first-time offenders, individuals arrested for possession or selling to support their habit. Some programs however, are expanding to include repeat offenders and few are accepting violent offenders (Vera, 2006). Nevertheless, programs with flexible eligibility criteria are rare and risk of

reoffending rather than past convictions should be point of consideration. Table 2 presents eligibility criteria for four drug courts in major jurisdictions.

Table 2: Eligibility Requirements for Four Major Drug Courts

| County, | Program type/capacity | Eligibility |
|---------------------------|-----------------------------------|---|
| Dade county, FL | Adult pretrial/1450 | No history of violent crime No arrest for drug sale or trafficking No more than two previous felony convictions |
| Brooklyn, NY | Post-plea | No prior felony conviction No charges involving drug sale near school property. No prior felony convictions |
| San Francisco, California | Pre-plea/440 | Ineligible if: <ul style="list-style-type: none"> • successfully completed DC within the last five years • conviction for sales or possession for sales of drugs within the last eight years. • convicted in Federal Court of Possession with the intent to distribute or distribution of a controlled substance • convicted of a violent or serious felony |
| Broward, FL | Pretrial and post conviction/2649 | No prior felony or conviction Charged with offense under sec. 948.08(6). Includes; purchase/possession etc. |

More difficult to determine are the eligibility rules with respect to substance abuse. Bhati et al. (2008) report that “[E]ligibility based on drug use severity is applied inconsistently—16% of drug courts exclude those with a drug problem that is deemed too serious, while 48% reject arrestees whose problems are not severe enough. Almost 69% exclude those with co-occurring disorders. Even among eligible participants, more than half of drug courts (52%) report they cannot accept some clients who are eligible for participation due to capacity constraints” (p.8).

These eligibility rules seem likely to exclude most experienced users of cocaine, heroin and methamphetamine. The few cohort studies of cocaine and heroin users (e.g. Hser et al, 2001; Hser et al, 2006) show that long-term users have accumulated long histories of convictions for property and violent crimes and that many—perhaps most—have co-occurring disorders or are polydrug users.

Estimating the potential effect of relaxing eligibility requirements is a major research challenge. Existing effectiveness findings reflect the tight eligibility

requirements. Drug courts choose certain clients, and exclude the more serious offenders, in the belief that defendants with longer and more serious criminal histories are likely to do less well in drug courts. They may be correct; without evaluations of the effects with these other client groups, the research strategies for making projections are inherently speculative.

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California's Proposition 36 provides the largest instance of diversion from the criminal justice system. Under Prop 36, first- or second-time drug possession arrestees are subject to a drug abuse assessment, after which, if appropriate, they are placed in a drug treatment program. The assessments consistently suggest that the use of noncriminal penalties has not produced increases in crime rates, either as a result of higher recidivism or of reduced deterrence.

Coerced abstinence, a twenty year crusade by UCLA's Mark Kleiman (e.g. Kleiman, 1997 and 2009), is a program that takes advantage of simple findings from psychology and public policy. A large number of offenders are under community supervision at any one time, whether it be pretrial release, probation, or parole. Because they have been arrested or convicted, the government can subject these individuals to random drug tests and indeed does from time to time.

Coerced abstinence involves making sanctions certain, immediate, and short rather than (as is normally the case) random, delayed, and long. Such interventions have not received widespread evaluation. The small number of existing studies (e.g., Harrell, Cavanagh, and Roman, 1998) have found that such programs have the predicted effects on recidivism. So far, there have been no efforts to implement them on a large scale. Recently Hawaii has tried it for the entire probation population. The results (Kleiman and Hawken, 2008; Kleiman, 2009) have been extremely positive. Very few of those enrolled in the program fail more than twice and the recidivism rates have been dramatically lower than for the probation population previously. A methodologically rigorous evaluation is in process.

Data

For the present paper, we analyze jail and prison survey data to study the size and composition of the offending population that might be served through drug courts and related interventions.

Our prison data are drawn from the 1986 and 2004 waves of the Survey of Inmates in State and Federal Correctional Facilities. We kept data for only state prison inmates for this study, since federal prisons house many more nonresident offenders and are not yet involved with drug courts.

In 1986, data are based on interviews with 13,711 inmates at 275 correctional facilities. Response rates among inmates selected for interview were approximately 93%. We present results for two groups. We first present results for the entire population of prison inmates represented by our sample. These respondents generalize to a state prison inmate population of approximately 454,000. This includes prisoners serving specific sentences. It also includes individuals returning to prison based on parole or probation violations who are generally ineligible for drug diversion interventions.

For much of this analysis, we focused on the incident cohort of inmates admitted to prison after June 1985. Our data excluded inmates returning to prison based on parole and probation violations, leaving a population representing approximately 62,000 inmates within the group captured by our data.

Data for the 2004 survey were obtained from personal interviews undertaken from October 2003 to May 2004. Response rates (combining nonresponse at both the prison and individual inmate level) were approximately 89%. These data generalize to a population of approximately 1.22 million. For much of this analysis, we focused on the incident cohort of inmates admitted to prison during 2003.

As in the 1986 analysis, our data excluded inmates returning to prison based on parole and probation violations, leaving a population representing approximately 166,000 inmates within the population captured by our data. Given the mechanics of survey frame construction, this incident cohort includes inmates who entered during early 2003. It does not capture admitted inmates throughout the entire year.

In both surveys, data on prior offenses and on substance use are based on inmate self-report. There is a substantial literature on such self-reporting correctional settings both for criminal histories (e.g., Horney and Marshall, 1992) and for substance use

(Farrabee and Friedlund, 1996); that research suggests an acceptable level of accuracy for both domains. Data are also analyzed using the STATA -svy- routines to account for the weighted nature of the survey itself. Sentenced crimes are categorized by numerical offense code. We also captured whether individuals received sentence enhancements due to drug violations, gun infractions, or habitual offending.

Prior analyses of the prison survey data (e.g., CASA 2002; Mumola and Karberg, 2006) have made comparisons for the entire incarcerated populations at each survey. Since many of those at each survey were incarcerated long before the survey itself, indeed were potential participants in an earlier wave, comparisons of the total population does not describe well the changing dynamics of incarceration as a process. Thus we identify in each case what we label an “incident cohort,” namely those who entered prison in the twelve months before the survey interview. We set out to compare changes in the inflow of prison inmates in each of the identified years. We provide only a few comparisons on the total populations in state prison for the two years.

We complement these prison data with data from the 2002 Survey of Inmates in Local Jails. These data capture an important population of drug offenders that is especially pertinent to diversion programs. The 2002 Jail Survey completed interviews with 6,982 inmates from 417 jails nationwide (for a total response rate of about 84%). These data generalize to a total population of approximately 631,000 inmates, although we restrict our analyses to the convicted inmate population (i.e., 4,900 sample cases corresponding to a weighted population of about 448,000 offenders).

At any moment in time, local jails house fewer inmates than are found in state prison systems. Given the short period of incarceration and the varied populations that are admitted to local jails, these facilities nonetheless reach a large population of drug-involved offenders. Because inmates of local jails are surveyed midstream in their involvement in the criminal justice system, surveys of this population provide especially pertinent information for drug courts and other diversion programs. Since jail inmates are rarely held for more than a year,⁷ there is no need to separate out an incident cohort for the jail population.

⁷ A few states, such as Maryland, admit to local jails individuals who have been sentenced to two years in jail.

Measuring Problematic Drug Use

We explored the impact of heroin, amphetamine/methamphetamine⁸, and cocaine (both powder and crack) use on offenders. Given the 18-year gap between the two surveys and the many different ways one could operationalize problematic drug use, we capture this behavior through a dummy variable indicating some self-reported use of these substances within the month prior to incarceration.

This measure proved highly correlated with other operationalizations of problematic drug use. The 2004 survey wave included summary measures of substance dependence and abuse. More than 90% of inmates who reported drug use within 1 month of incarceration satisfied abuse or dependence criteria. Moreover, more than half of the inmates who reported abuse or dependence of any substance had used heroin, methamphetamine, or cocaine in the month before incarceration.

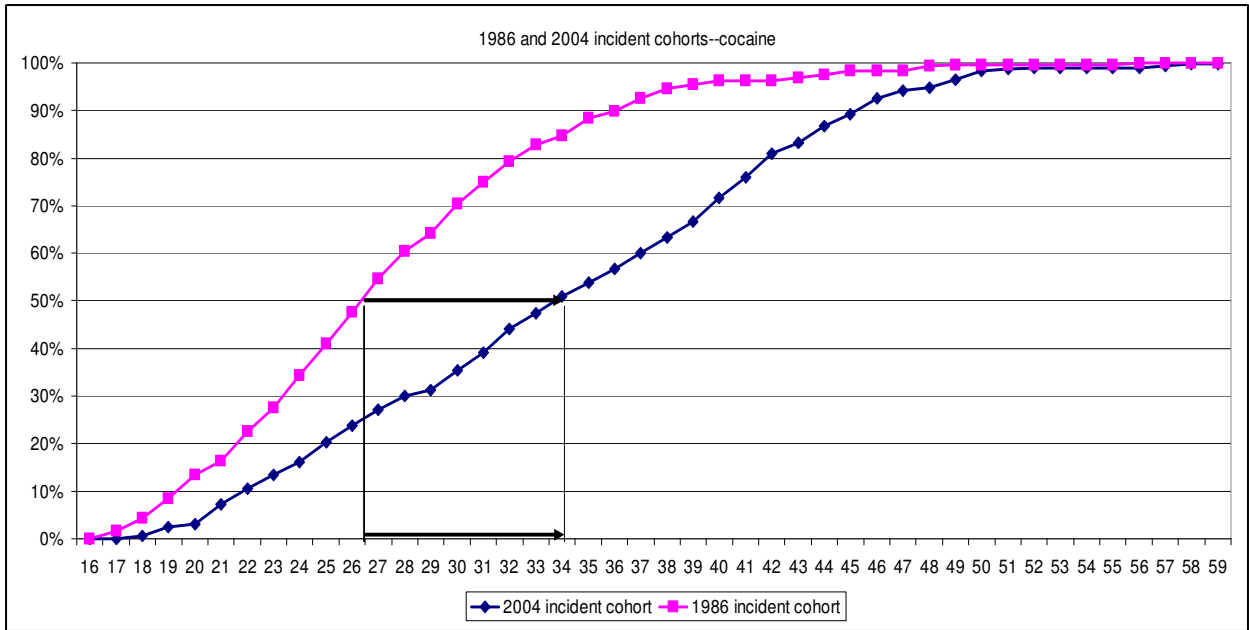
Results

The Changing Age Distribution of State Prison Entrants by Drug of Abuse

To capture the changing age distribution of drug-involved offenders, we compared the age distribution of newly-incarcerated inmates within the 1986 and 2004 survey of state prison inmates. By newly incarcerated, we mean arrested for a new offense and then committed to state prison for that offense.

Figure 7. Age Distribution of State Prison Admissions with Cocaine Problems, 1986 and 2004

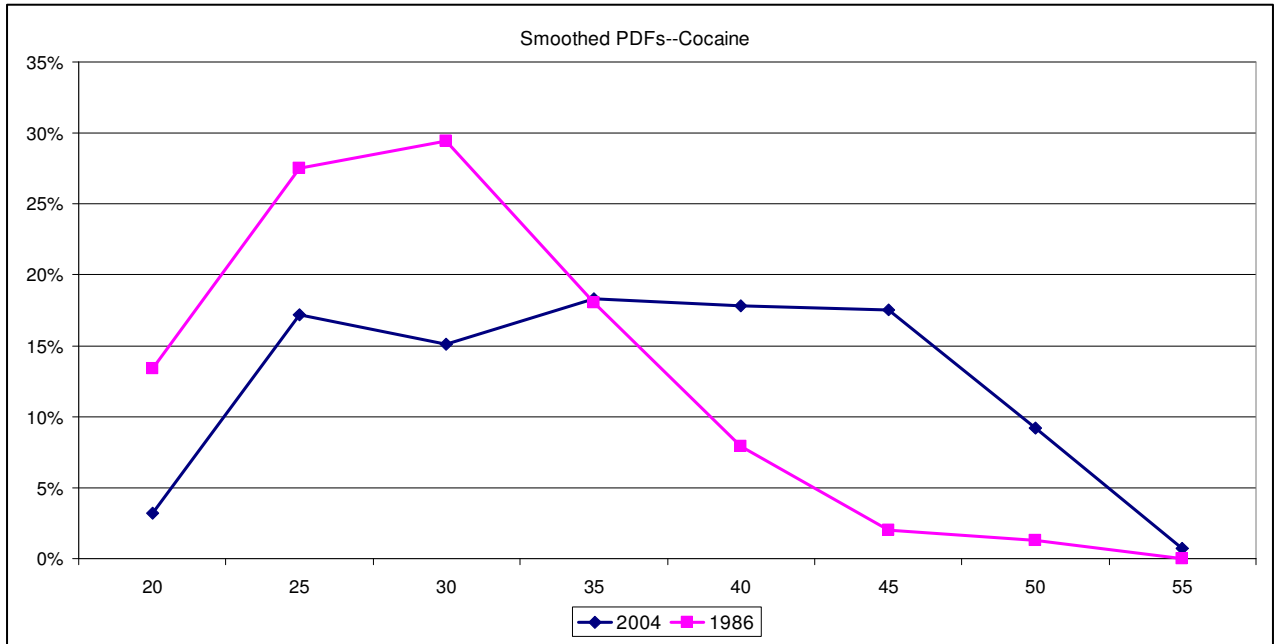
⁸ Current jail data are analyzed only for methamphetamine.



As noted above, for comparability across cohorts, we employed a simple operationalization of drug involvement: Whether an inmate had used a given substance—cocaine, methamphetamine, or heroin—in the month before their arrest on the current charge. This metric is highly correlated with other measures of problematic substance use.

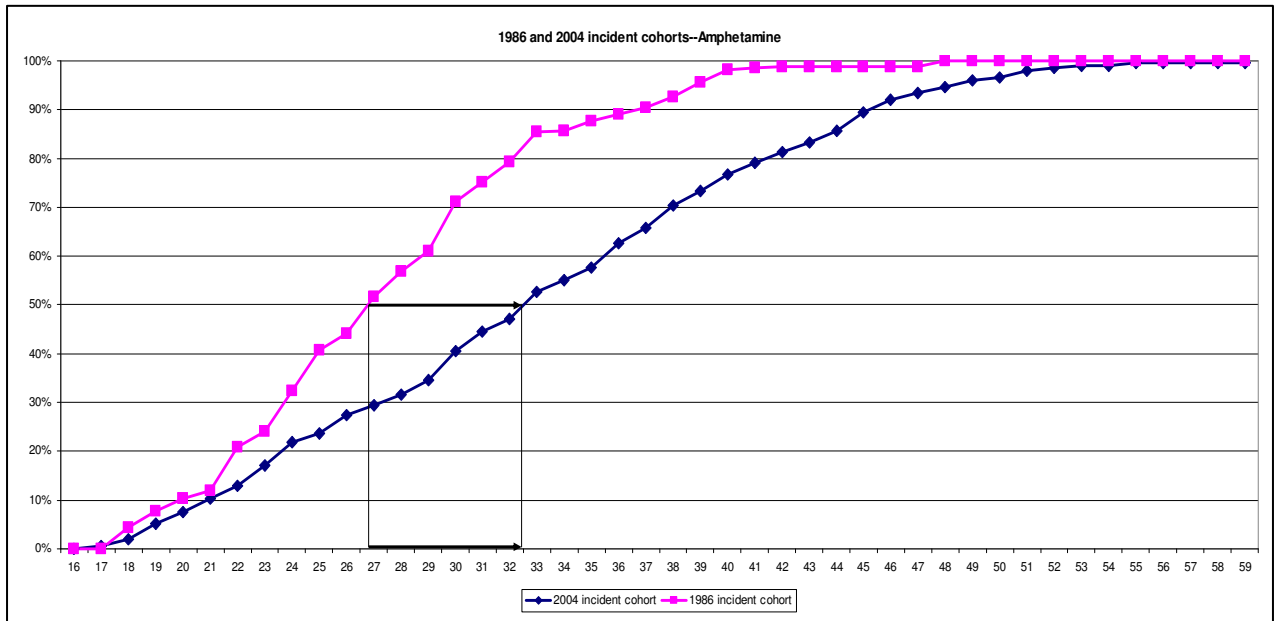
Figures 7-12 compare age distributions by drug for the 1986 and 2004 entering cohorts. As shown in Figure 7, the cocaine-using cohort significantly aged between 1986 and 2004. Median age increased from slightly over 26 to almost 34 years of age. Differences appear even greater at higher percentiles of the age distribution. Differences between the two distributions between the 60th and 90th percentiles are approximately ten years. Probability densities are reasonably noisy given low sample size. Drawing the histogram with five-year ranges illustrates population aging well (Figure 8). The 1986 distribution is more concentrated at lower ages, and included relatively few new prisoners older than age 35. By 2004, half the new prisoners were over the age of 35.

Figure 8. Probability Distribution Function of State Prison Admissions with Cocaine Problems, 1986 and 2004



Results were similar for methamphetamine, with a rise in median age from 26.5 to 32.5, and larger increases at upper age ranges. In 1986, virtually none of the incident cohort was over the age of 40. By 2004, more than 20 percent of incoming prisoners exceeded this age.

Figure 9. Age Distribution of State Prison Admissions with



Methamphetamine Problems,

1986 and 2004

**Figure 10. Probability Distribution Function of Age for Methamphetamine
Prison Admissions, 1986 and 2004**

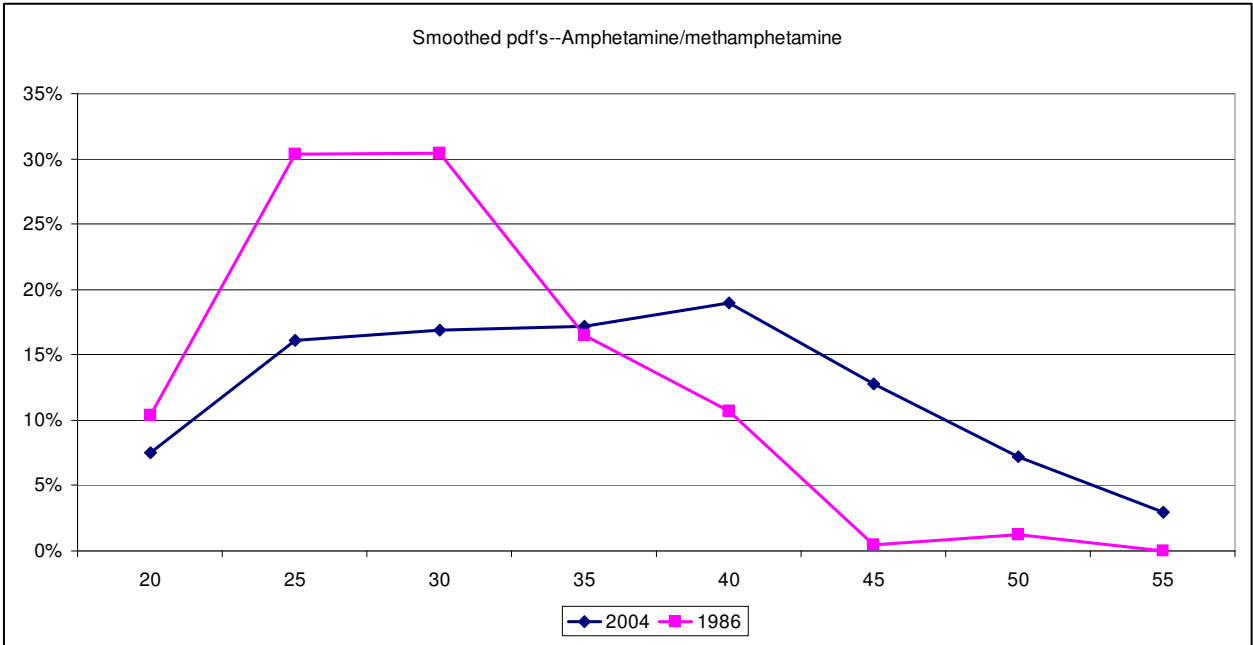


Figure 11. Age Distribution of State Prison Admissions with Heroin Problems, 1986 and 2004

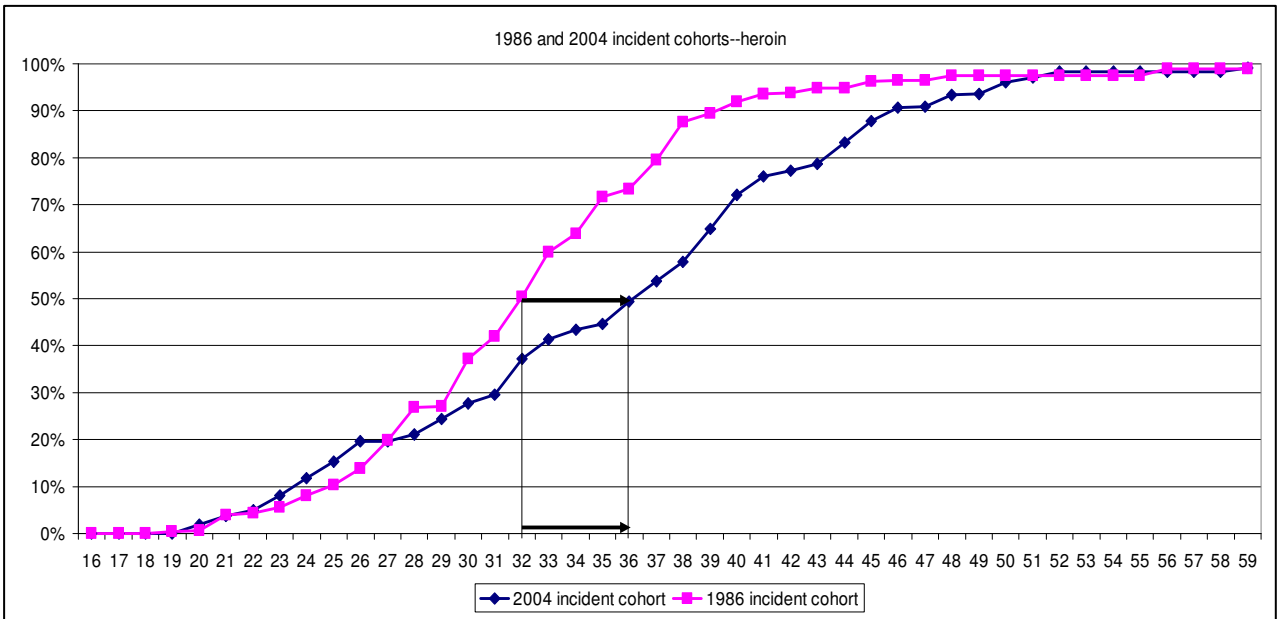
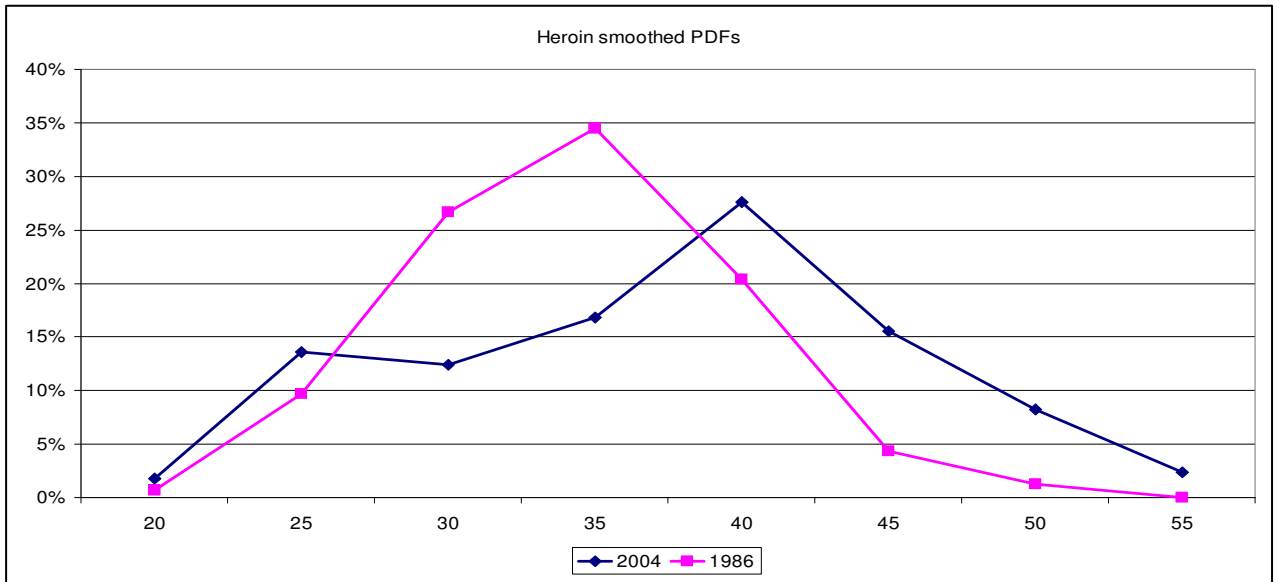


Figure 12. Probability Distribution Function of Age for Heroin Prison Admissions, 1986 and 2004



We found smaller population aging across the incident heroin cohorts. Median age increased from approximately 32 to 36, with slightly larger differences at higher percentiles of the distribution. Examining the smoothed probability distributions, we find a gentler shape to this distribution. Older users are present in the distribution. Yet there is much greater parity at earlier ages than for other drugs.

The remainder of the inmate population--i.e. new entrants who did not report use of any of the three expensive drugs in the month before arrest--showed much smaller aging pattern between the two survey years. As shown in Figure 13, the median age rose by barely 2 years. In addition, as shown in Figure 14, the age distributions of the two cohorts were virtually identical.

Figure 13. Age Distribution of State Prison Admissions with No Cocaine, Methamphetamine, or Heroin Problems, 1986 and 2004

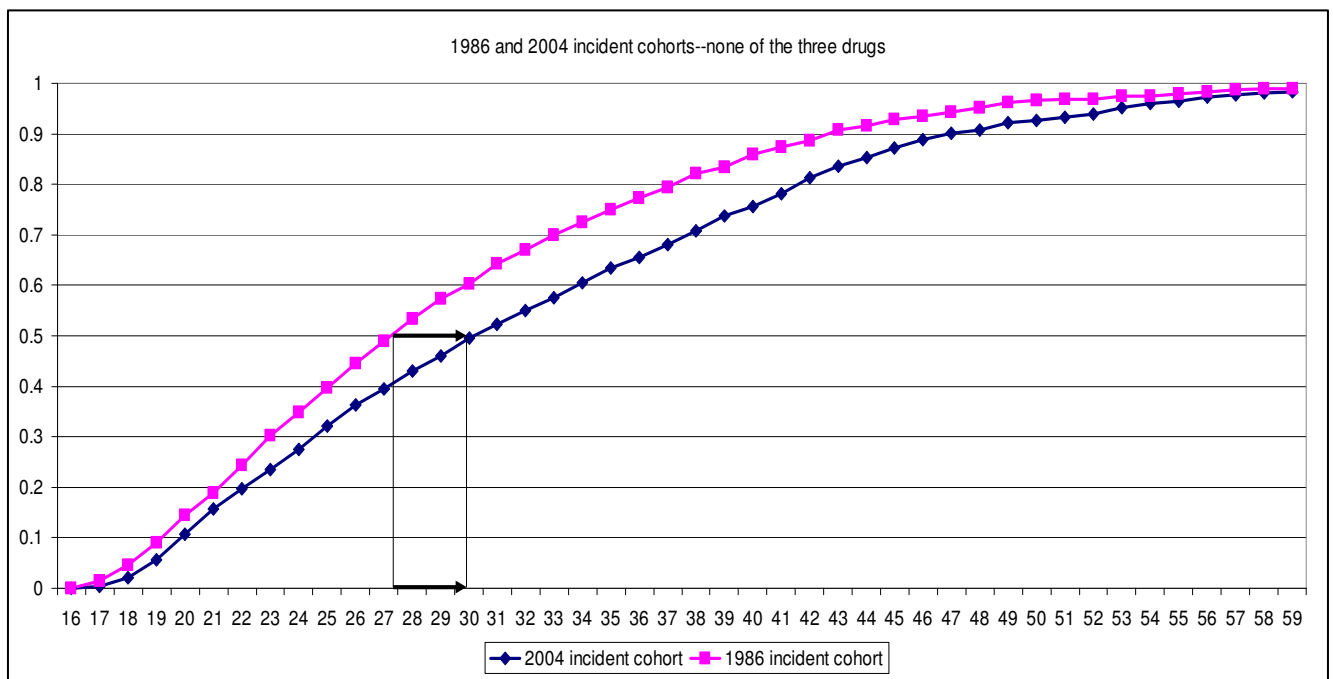
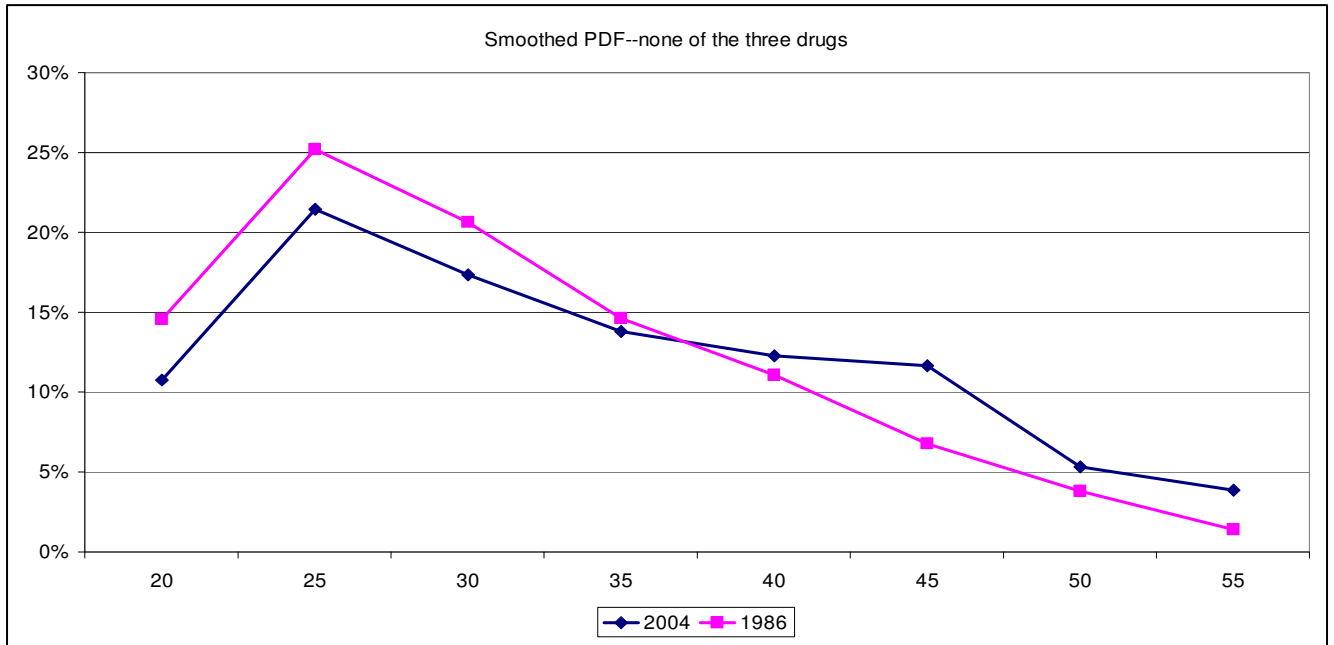


Figure 14. Probability Distribution Function of Age for Prison Admissions with No Cocaine, Methamphetamine, or Heroin Problems, 1986 and 2004



The shifting age distribution of drug-involved offenders is especially important given the declining age profile of violent offenses in this population. To illustrate this point, Table 3 displays the results of a simple linear probability model applied to the cocaine, methamphetamine, and heroin incident cohorts of our 2004 sample. As shown below, rates of violent offending decline by more than 3% per year within each of these groups (though the coefficient within the heroin cohort was not significant, probably reflecting the small sample size).

Table 3.

| Dependent variable: Probability of current violent offense among drug-involved offenders | | | |
|---|-----------------------------|------------------------------|---------------------------|
| | Cocaine | Amphetamine | Heroin |
| Age (yrs) | -0.0337** (0.015) | -0.0581*** (0.015) | -0.0440 (0.036) |
| Age ² | 0.000372* (0.00020) | 0.000715*** (0.00019) | 0.000551 (0.00048) |
| Male | 0.120*** (0.036) | 0.132*** (0.045) | 0.134** (0.065) |
| Hispanic | 0.163** (0.075) | 0.100 (0.080) | 0.100 (0.11) |
| Non_citizen | -0.107 (0.19) | -0.542*** (0.16) | -0.0785 (0.16) |
| Foreign-born | -0.00261 (0.14) | -0.0455 (0.16) | -0.189 (0.17) |
| Married | -0.0276 (0.066) | 0.0582 (0.073) | 0.0493 (0.11) |
| Black | -0.0353 (0.050) | -0.0394 (0.11) | -0.161* (0.084) |
| Native Amer | 0.00178 (0.10) | 0.0984 (0.11) | 0.110 (0.16) |
| Asian | -0.0402 (0.25) | 0.382*** (0.14) | 0.133 (0.28) |
| Other race | -0.183 (0.14) | -0.115 (0.13) | 0.00636 (0.16) |
| Constant | 0.841*** (0.28) | 1.185*** (0.29) | 0.916 (0.65) |
| Obs | 477 | 310 | 144 |
| R-squared | 0.08 | 0.13 | 0.14 |

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

The probability that offenders will satisfy criteria that disqualify them from diversion programs increases with age, even as the probability of violent offending declines.

The implications of these trends are shown below in Table 4. Entering inmates below the age of 25 were twice as likely to be currently sentenced for a violent offense. Yet offenders older than age 35 were markedly more likely to be labeled habitual offenders or to face sentencing enhancements that would exclude them from typical drug diversion programs.

Table 4.

| | Incoming state prison inmates younger than age 25 | | | Incoming state prison inmates older than age 35 | | |
|--|---|--|---|---|--|---|
| | Probability of current offense being violent | Probability of “Habitual offender” label | Probability of sentence enhancement for current offense | Probability of current offense being violent | Probability of “Habitual offender” label | Probability of sentence enhancement for current offense |
| Used cocaine within one month of incarceration | 40% | 7% | 16% | 16% | 24% | 37% |
| Used methamphetamine within one month of incarceration | 41% | 5% | 21% | 18% | 23% | 32% |
| Used heroin within one month of incarceration | 42% | 11% | 11% | 18% | 38% | 50% |

Source: 2004 Survey of Inmates in State and Federal Correctional Facilities

Drug Court Calculations

In addition to computing age curves, we examined the proportion of incoming prisoners with problematic drug use who would be eligible for drug court diversion.

State Prison Population

We classified inmates, first in the whole state prison sample and then in the incident cohort, by characteristics that affected eligibility for drug court. In Table 5, those characteristics that disqualify the individual for drug court are italicized; those that

make them eligible are plain text. We also include information on drug use and sentence length.

Table 5.

| 2004 State Prison Inmate Sample | Full Sample (N=1.22 million) | | | Incident sample of newly-sentenced offenders (N=165,666) | | |
|--|------------------------------|-------------------------|-------------------|--|------------------------|-------------------|
| | Cocaine (N=257,429) | Amphetamine (N=147,038) | Heroin (N=73,436) | Cocaine (N=32,932) | Amphetamine (N=21,883) | Heroin (N=10,326) |
| Current (non-trafficking) drug offense | 5.2% | 6.6% | 7.3% | 19.1% | 21.9% | 23.9% |
| <i>Drug trafficking</i> | 9.9% | 12.9% | 12.2% | 7.2% | 4.4% | 6.1% |
| Current (non-trafficking) drug offense and no current sentence for listed crime ⁹ and no sentence enhancement for guns, drugs or habitual offending | 2.5% | 3.4% | 3.2% | 16.1% | 12.9% | 10.4% |
| Current (non-trafficking) drug offense and no current sentence for listed crime and no history of gun involvement or sentences for listed crimes or sentence enhancement ¹⁰ | 2.0% | 2.4% | 2.2% | 8.4% | 9.4% | 6.2% |
| No current sentence for listed crime and no sentence enhancement | 33.9% | 38.3% | 34.8% | 30.0% | 28.2% | 30.8% |
| No history or current sentence for listed crime and no sentence enhancement. | 15.3% | 17.9% | 14.9% | 20.8% | 22.0% | 18.9% |
| Current offense is nonviolent | 68.4% | 73.6% | 71.9% | 75.1% | 77.5% | 80.6% |
| Screen for drug abuse/dependence | 90.3% | 92.8% | 93.5% | 88.2% | 93.5% | 92.1% |
| <i>Gun violation</i> | 20.7% | 25.2% | 20.2% | 9.6% | 17.4% | 9.4% |
| <i>History of violent offenses</i> | 49.6% | 49.0% | 51.5% | 30.6% | 33.8% | 31.4% |
| <i>Current sentence for drug trafficking</i> | 10.5% | 14.9% | 10.7% | 21.9% | 32.6% | 17.6% |
| <i>Current sentence for listed crime</i> | 49.6% | 45.1% | 46.2% | 57.9% | 61.9% | 50.9% |
| <i>Current or past sentence for listed crime or for gun violation</i> | 79.0% | 77.5% | 78.0% | 71.6% | 73.2% | 71.7% |
| Mean Sentence (yrs) | 11.2 | 9.8 | 9.7 | 5.6 | 6.1 | 5.7 |
| Mean Age | 36.0 | 33.9 | 37.6 | 34.4 | 33.5 | 36.0 |

⁹ Listed crimes include: Homicide, manslaughter, kidnapping, armed robbery, unarmed robbery, burglary, aggravated assault, assault on a police officer, arson, blackmail, extortion, sex crimes, drug trafficking, other violent crimes.

¹⁰ Sentence enhancements for the current offense arising from gun or drug infractions or from habitual offending.

As shown in Table 6, the contrast is especially stark between the incident and the non-incident cohorts of drug-involved state prison inmates. More than 70% of the non-incident cohort are serving a current sentence for a listed crime. More than 85% have current or past sentences for listed crimes or gun violations. Non-incident inmates are twice as likely as incident inmates to be serving current sentences for violent offenses.

This pattern illustrates a point that arises in many contexts from unemployment to welfare reform. The current population of incarcerated offenders are a “length-biased” sample. Compared with new entrants to prison in a given year, incarcerated offenders are more likely to be long-term offenders in the midst of long incarceration spells, and are more likely to satisfy other criteria of serious offending. As in the case of welfare cash assistance (Ellwood, 1989), new entrants to prison/TANF are a distinct population from those who are long term prisoners/welfare recipients. Thus, programs that significantly affect the flow of new prison entrants may have a much more modest impact on the stock of incarcerated prisoners. We return to this point in the Conclusions section.

Table 6.

| 2004 State Prison Inmate Sample | Non-incident Sample of sentenced offenders (N= 514,236) | | | Incident sample of newly-sentenced offenders (N=165,666) | | |
|--|---|------------------------|-------------------|--|------------------------|-------------------|
| | Cocaine (N=99,038) | Amphetamine (N=48,773) | Heroin (N=24,739) | Cocaine (N=32,932) | Amphetamine (N=21,883) | Heroin (N=10,326) |
| Non-trafficking drug offense | 7.2% | 10.0% | 11.2% | 19.1% | 21.9% | 23.9% |
| Drug trafficking | 3.9% | 4.7% | 5.6% | 7.2% | 4.4% | 6.1% |
| Current (non-trafficking) drug offense and no current sentence for listed crime ¹¹ and no sentence enhancement for guns, drugs or habitual offending | 5.5% | 7.8% | 8.7% | 16.1% | 12.9% | 10.4% |
| Current (non-trafficking) drug offense and no current sentence for listed crime and no history of gun involvement or sentences for listed crimes or sentence enhancement ¹² | 4.0% | 5.6% | 7.5% | 8.4% | 9.4% | 6.2% |
| No current sentence for listed crime and no sentence | 17.3% | 21.4% | 22.1% | 30.0% | 28.2% | 30.8% |

¹¹ Listed crimes include: Homicide, manslaughter, kidnapping, armed robbery, unarmed robbery, burglary, aggravated assault, assault on a police officer, arson, blackmail, extortion, sex crimes, drug trafficking, other violent crimes.

¹² Sentence enhancements for the current offense arising from gun or drug infractions or from habitual offending.

| | | | | | | |
|--|-------|-------|-------|-------|-------|-------|
| enhancement | | | | | | |
| No history or current sentence for listed crime and no sentence enhancement. | 10.8% | 14.6% | 15.8% | 20.8% | 22.0% | 18.9% |
| Current offense is violent | 59.0% | 54.5% | 53.2% | 25.8% | 23.9% | 19.4% |
| Screen for drug abuse/dependence | 90.2% | 92.3% | 92.3% | 88.2% | 93.5% | 92.1% |
| Gun violation | 28.7% | 33.3% | 27.7% | 9.6% | 17.4% | 9.4% |
| History of violent offenses | 57.6% | 57.4% | 54.8% | 30.6% | 33.8% | 31.4% |
| Current sentence for drug trafficking | 14.5% | 20.1% | 15.5% | 21.9% | 32.6% | 17.6% |
| Current sentence for listed crime | 77.9% | 70.2% | 71.7% | 57.9% | 61.9% | 50.9% |
| Current or past sentence for listed crime or for gun violation | 89.8% | 87.0% | 85.0% | 71.6% | 73.2% | 71.7% |
| Mean Sentence (yrs) | 14.1 | 13.9 | 12.3 | 5.6 | 6.1 | 5.7 |
| Mean Age | 36.8 | 36.1 | 39.4 | 34.4 | 33.5 | 36.0 |

Tables 5 and 6 illustrate the central challenge in reducing the prison population through drug courts and other diversion programs. Problematic drug use was common among state prison inmates. The 2004 sample included 400,000 individuals who had used cocaine, heroin, or amphetamine in the month prior to their admission to prison. More than 90% of these individuals satisfied screening criteria for abuse or dependence. For the 2002 jail inmates, about 136,000 (of the 448,000 convicted inmates) use heroin, cocaine, or methamphetamine in the month prior to their admission. Similarly, more than 90% met criteria for substance abuse or dependence in the year prior to arrest. Thus a rough estimate is that in 2004 (projecting no change in the jail figure between 2002 and 2004) the number of drug dependent individuals entering jail and prison was approximately 480,000 (90% of 536,000).

To put these numbers into perspective, we compared our descriptive statistics with the 2005 Treatment Episode Data System (TEDS), an administrative data set that captures at least 80% of all known treatment admissions in the United States in 2004. TEDS data yield 680,775 treatment admissions for which cocaine, amphetamine, or heroin was the primary substance of misuse. The incarcerated drug-dependent populations in prisons and jails rival the substance abuse treatment system in the size of the drug-using population receiving services on any given day.

Yet only a small minority of inmates are likely to be eligible for drug courts or similar interventions. Within the incident cohort, approximately one-fifth were under a

current sentence for minor (that is, non-trafficking) drug offenses—the archetypal offense promoted as suitable for drug court intervention. An even smaller fraction were incarcerated for such crimes and none of the listed disqualifying offense. Such minor drug offenders account for an even smaller fraction of the overall state prison population.

If one broadens the universe from minor drug crimes to include other offenses, diversion programs would have a slightly larger population to draw from. Approximately one-fifth of inmates reported no history or current sentences for the above listed crimes.

Inmates in Local Jails

Perhaps our most surprising descriptive findings concerned inmates in local jails. Based on our 2002 data, a very small fraction of sentenced jail inmates would be eligible for drug courts based on the eligibility criteria cited above. Table 7 shows the number of convicted jail inmates who reported cocaine, methamphetamine, or heroin use in the month prior to their arrest. Each of the first nine rows list a common exclusionary criterion for drug court eligibility.

Prior criminal history factors exclude the largest share of offenders with current drug problems from drug court eligibility. For example, across all three drugs, more than seven-in-ten would be ineligible in the basis of being under criminal justice supervision at the time of arrest or of being a habitual offender. Most strikingly, less than 1% of these inmates would be eligible for drug courts that applied all nine exclusionary criteria. Importantly, this eligibility figure rises to roughly half if offenders were allowed up to two “strikes” against their eligibility. Setting aside important considerations of program capacity, this suggests that relaxing eligibility criteria, especially for offenders with active or long criminal histories, would expand the pool of criminal offenders eligible for drug court and related interventions.

Table 7.

| | Cocaine (N=91,130) | Methamphetamine (N=42,981) | Heroin (N=24,382) |
|-----------------------------------|-----------------------|-------------------------------|----------------------|
| Criminal justice status at arrest | 74.1% | 77.7% | 77.4% |
| Weapons violation | 6.4% | 6.7% | 5.5% |
| Firearms sentencing enhancement | 1.0% | 2.8% | 0.0% |
| Used gun | 2.7% | 3.5% | 3.3% |

| | | | |
|---------------------------------------|-------|-------|-------|
| Firearm violation | 3.3% | 5.4% | 3.3% |
| Felony trafficking | 16.2% | 13.5% | 13.8% |
| Third offense (or higher) | 70.3% | 70.6% | 68.6% |
| Prior violent offense | 50.8% | 52.7% | 49.9% |
| Current violent offense | 14.0% | 13.9% | 8.7% |
| None of the above factors | 0.7% | 0.3% | 0.5% |
| No more than one of the above factors | 16.2% | 14.8% | 12.5% |
| No more than two of the above factors | 51.1% | 52.2% | 60.0% |

Conclusions

We began this paper by noting that diverting drug involved offenders from the criminal justice system, in particular getting them into treatment rather than jail or prison, has long been a major concern of the criminal justice system. The drug court movement has been a prominent and important innovation, almost universally praised by policy makers at every level of the criminal justice system. Other innovations, such as Proposition 36 in California and intensive supervision probation in various jurisdictions have pursued the same goal.

Notwithstanding that, we have documented that the numbers of drug involved individuals in the US state prison and local jail systems have risen substantially in the last twenty years, both in absolute numbers and as a percentage of the total. When we confine comparisons to those entering the prison system *de novo* (our incident cohort) in 1986 and 2004, we see evidence that the entering drug-involved inmates are aging for the three drugs (cocaine, heroin and methamphetamine¹³) in contrast to a much slighter increase in the age of those not involved with drugs.

Prior studies, in particularly Bhati et al. (2008), have shown that drug courts have made little difference to the criminal justice system because they handle such small numbers of criminal defendants. Our paper adds to these findings with the observation that drug courts, as currently structured, have little potential to make a difference to incarceration totals because so few of those entering jail or prison would meet the eligibility requirements of the current courts.

¹³ Even though the data category is amphetamine, we refer at this stage to methamphetamine because that is the dominant form and is how the problem is characterized publicly.

This importantly reflects the observed aging of the populations involved with the three expensive drugs. A large share of drug-involved offenders entering correctional facilities have accumulated long criminal careers that make them unattractive clients for the drug court movement. That this statement is true of jails as well as state prisons is quite discouraging.

Ironically, the aging of the drug using offenders has another consequence. They are now much less likely to be convicted of a new violent offense, the principal public concern about criminal offenders under community supervision. There has been growing interest in the time to “redemption” for those with a criminal history, i.e. the number of years after an arrest or conviction at which an individual is no longer much more likely to commit a new offense than someone who has never been arrested/convicted (Blumstein and Nakamura, 2009). The policy question for drug courts is whether it is possible that a more careful analysis of the criminal careers of long-term drug users will allow the selection of some candidates for diversion programs with acceptable risks of committing a serious crime while under the supervision of a drug court or intensive probation. That analysis is beyond the scope of this paper.

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