



# Reducing Drug Use in Prisons: *Pennsylvania's Approach*

*by Thomas E. Feucht  
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**D**rug use and crime are undeniably linked. More than half of all adult arrestees test positive for drug use at the time of their apprehension.<sup>1</sup> Self-reports from prison inmates indicate that their drug use prior to incarceration is typically chronic and linked to other criminal behavior. Although only a fifth of inmates in State prisons in 1997 were incarcerated for drug crimes, 83 percent reported past drug use and 57 percent were using drugs in the month before their offense.<sup>2</sup>

Despite their segregation from society and continuous close supervision, prison inmates still manage to obtain illicit drugs. Such drug use in prison threatens the safety of inmates and staff, contradicts rehabilitative goals, undermines the authority of the correctional institution, reduces public confidence, and ultimately corrodes the safety of communities and neighborhoods to which offenders return after prison.

## Recognizing the Problem

In 1994 and again in 1998, as part of a national focus on violent crime, its link to drugs, and the pivotal role prisons can play in treating drug addiction, Congress took legislative steps to encourage States to

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implement comprehensive prison drug-testing and addiction treatment policies.<sup>3</sup>

Even before the congressional impetus, however, Pennsylvania had acknowledged that drug use was pervasive in several of its prisons. Governor Tom Ridge appointed Martin F. Horn as secretary for corrections in 1995 and charged him with the responsibility of ridding the prison system of drugs.

Several prisons within the Pennsylvania Department of Corrections (PDC) system were suffering from widespread drug availability and use: Six inmates died of drug overdoses during 1995 and 1996, assaults on corrections officers and inmates had increased, and the press reported corruption among the staff and collusion between inmates and staff in obtaining drugs. The system's existing policies and resources were overwhelmed by the scope of the problem.

To rid Pennsylvania's prisons of drugs and to secure inmate and staff safety, Secretary Horn launched

the Drug Interdiction Program, a broad-based strategy combining interdiction methods, drug testing, and drug treatment.

Secretary Horn also asked the National Institute of Justice (NIJ) to help assess the impact of the program in five prisons that represented a cross-section of the system. This article describes PDC's interdiction strategies, the evaluation effort, and the subsequent decrease in drug use.

Although Secretary Horn cites interdiction as the main reason for the decrease, he stresses that it alone does not account for the results. All inmates now undergo an evaluation to determine if they need substance abuse treatment when they enter the State's prison system. Nearly 92 percent do. All of Pennsylvania's 24 prisons offer treatment; 7 also operate therapeutic communities in which inmates with severe substance abuse problems are housed separately and undergo intensive, long-term treatment. In 1997, PDC opened its first substance abuse treatment prison, which requires inmates to undergo difficult, intensive, and long-term treatment.

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## PDC's Drug Interdiction Strategies

At the heart of PDC's comprehensive strategy was a zero-tolerance drug policy: Inmates caught with drugs were to be criminally prosecuted. Those testing positive in PDC's routine urine drug-testing program were to serve disciplinary custody time.

**Table 1: Type and Frequency of Pennsylvania's Drug Interdiction Program Activities, 1995–1998\***

Activity	1995	1996	1997	1998
Cell searches	66,727	73,693	87,039	89,699
K-9 searches				
Cells	None	4,955	11,143	7,725
Vehicles	None	1,789	3,858	3,041
Common areas	None	3,813	7,751	5,680
Scan of visitors using drug detecting equipment	None	19,036	30,020	22,074
Visitors denied	None	952	600	734
Urinalysis drug tests	29,494	50,235	69,926	105,347

\* Other program features not reported in this chart included increased phone monitoring, referral to drug treatment, and starting in 1998, scanning of correctional staff using drug detecting equipment.

**Table 2: Samples sizes, head hair, and body hair, 1996 and 1998**

Institution	1996 (Before Drug Interdiction Program)			1998 (After Drug Interdiction Program)		
	Sample Size (N)	Head Hair (%)	Body Hair (%)	Sample Size (N)	Head Hair (%)	Body Hair (%)
Prison #1	202	35%	65%	232	42%	58%
Prison #2	169	32%	68%	196	37%	63%
Prison #3	220	62%	38%	213	57%	43%
Prison #4	187	75%	25%	200	87%	13%
Prison #5*	139	100%	None	190	100%	None
<b>Total</b>	<b>917</b>	<b>59%</b>	<b>41%</b>	<b>1,031</b>	<b>64%</b>	<b>36%</b>

\*Prison #5 is a facility for women.

The strategy relied on greater surveillance of both inmates and visitors, increased frequency of random urinalysis, more cell searches and surprise raids, and increased use of drug-sniffing dogs.

PDC also introduced highly sensitive drug detection equipment—ion mobility spectrometers—to

detect drugs that visitors might try to smuggle into the prison, to inspect packages arriving in the mail, and beginning in 1998, to detect drugs that correctional staff might try to bring into the prison.

In addition, new policies were issued for inmate movement and visitation, and new sanctions for drug violations were instituted. PDC

also installed a new phone system, allowing staff to monitor inmates' calls on a random basis. Table 1 summarizes the major features of the Drug Interdiction Program put into place by PDC between 1995 and 1998.

## Evaluating the Effects of the Program

PDC officials explored several options for measuring the impact of the Drug Interdiction Program and finally decided to measure drug use by adding hair testing to the urine testing already taking place.

Hair analysis is particularly suited to prison-based situations where drug use may be episodic and sporadic. Hair tests can reveal drug use that occurred anytime within the previous 90 days, whereas urinalysis is limited to detecting drug use within the previous 48 hours or so.<sup>4</sup>

PDC officers collected hair and urine specimens from inmates on two occasions: in March 1996 (the first wave) and in February/March 1998 (the second wave). They collected about 1,000 hair specimens from a random sample of male and female inmates at the five prisons. A head hair specimen was obtained whenever feasible, but axillary (chest or underarm) hair was accepted in those cases where sufficient head hair was unavailable.<sup>5</sup> (See sidebar “The Challenges of Hair Analysis,” opposite)

Urine and hair specimens were collected at the same time.<sup>6</sup> To minimize the possibility of detecting drug use that had occurred prior to incarceration, only specimens from inmates who had been in the PDC system for at least 3 months were analyzed. The final sizes of the hair sample are shown in table 2.

# The Challenges of Hair Analysis

As they drew up their guidelines for using hair to test for drug use, PDC officials reviewed issues pertaining to inmate and correctional officer safety, hygiene, and religious restrictions on cutting hair. Guidelines pertaining to religious and other grounds for refusing the test were reviewed and implemented. In accordance with accepted testing procedures, head hair was obtained whenever possible, but chest hair was accepted when an inmate's head hair was too short, shaved, or nonexistent.

In addition, PDC developed procedures for protecting the confidentiality of individual results from the hair drug tests because hair tests were to be used for research purposes only. Staff at NIJ compiled the statistical data and made aggregate reports available to PDC.

Corrections supervisors nominated officers to be trained in collecting, handling, and packaging the specimens.

## Head Hair vs. Body Hair: Implications for Analysis

The proportion of body hair samples compared to head hair samples was greater than anticipated, particularly at two of the prisons.

The substitution of body hair for head hair was not an entirely satisfactory alternative, primarily because of differences in the rate of growth.

**Rate of growth.** Body hair and head hair grow at very different rates, and as a result, drugs may be incorporated into the two different hair types at different levels. While head hair grows at a fairly constant rate of about 1.3 centimeters per month, body hair grows to a given length, remains dormant for a period of time, and eventually falls out. Since dormant hair is not growing, drug metabolites cannot be efficiently incorporated into the hair shaft. At any given time, proportionally more body hair than head hair is dormant.

**Racial and ethnic differences.** Some researchers have suggested that thicker or darker hairs may more readily absorb drugs and other chemicals, resulting in artificially inflated levels of drug use for some racial and ethnic groups, such as African Americans and Asian

Americans. Laboratory procedures used to resolve this possible source of bias in test results are largely proprietary and remain a source of some debate. In the PDC sample, the differential effect of hair color is probably less problematic than the difference between head and body hair.

**Effects on the analysis.** To the extent that inmates who lack adequate head hair differ from other inmates in important inmate characteristics (like gender, race, and age), the analysis does not represent drug use across the entire inmate population. If inmates who lack head hair differ from other inmates in terms of their use of illicit drugs, results based on head hair only will yield biased estimates of the actual prevalence of drug use in the inmate population. It should be noted, however, that body hair samples showed declines in drug use between 1996 and 1998 similar to those shown by the head hair samples.

**Note:** A hair specimen of about 60 to 80 strands was collected from each inmate. Each specimen was analyzed by Psychemedics Corporation in accordance with rigorous laboratory procedures. (Psychemedics received a contract from NIJ to conduct the analysis.) Before analysis, hair samples were trimmed to a standard length of 3.9 cm, representing the average rate of growth of head hair over a 3-month period. Some hair shorter than 3.9 cm was collected, and some longer hair was not trimmed to length because the root ends could not be properly aligned. Further sample preparation and analysis of the sample were conducted to resolve issues of potential environmental contamination.

## A Remarkable Decrease in Drug Use

Results from the two waves of hair analysis drug tests show a dramatic decrease in the use of drugs in the prisons. (See table 3.) Results from the initial tests in 1996, taken before implementation of the new strategy, indicate that 7.8 percent of all inmates who provided a head hair specimen had used at least one illicit drug during the previous 90 days. Marijuana was the most frequently used drug (6.5 percent), followed by

Table 3: Results of Urine and Hair Tests Showing Drug Use Before and After Pennsylvania's Drug Interdiction Program\*

Type of Test	Marijuana		Cocaine		Opiates		Any Drug	
	Before 1996	After 1998	Before 1996	After 1998	Before 1996	After 1998	Before 1996	After 1998
Urinalysis	2.0	1.6	0.1	0.0	0.6	0.8	3.4	2.2
Hair Assay								
Head or body	9.3	0.8	2.3	1.2	0.8	0.6	10.6	2.3
Head hair only	6.5	0.3	1.5	0.8	0.9	0.5	7.8	1.4

\*Before=1996, After=1998

Table 4: Percentage of positive drug test results by age, race, and committing offense of inmate (first wave, 1996)

	Sample size	Marijuana*	Cocaine	Opiates
<b>Age</b>	<b>N</b>	<b>%</b>	<b>%</b>	<b>%</b>
18–25	153	12.2	0.0	0.0
26–35	328	11.4	3.4	0.6
36–45	291	6.4	3.4	1.0
>45	145	6.8	0.0	1.4
<b>Race</b>				
Black	533	9.0	3.0	0.8
White	321	8.9	1.6	0.9
Hispanic	63	13.8	0.0	0.0
<b>Time in prison</b>				
<1 yr	206	6.1	5.3	0.5
1–5	231	6.8	0.9	0.0
5–12	413	12.6	1.7	1.2
>12	67	7.0	1.5	1.5
<b>Committing offense</b>				
Violent	514	10.3	1.9	1.4
Drugs/alcohol	148	5.6	2.7	0.0
Property	184	10.7	3.8	0.0
Other	71	6.2	0.0	0.0
<b>TOTAL</b>	<b>917</b>	<b>9.3</b>	<b>2.3</b>	<b>0.8</b>

\*Results for marijuana based on a reduced sample size (N=852)

cocaine. Two years later, posttest results showed that marijuana use had dropped to 0.3 percent and that 1.4 percent had used at least one illicit drug during the previous 90 days. Similar declines were realized for cocaine and opiates.

Hair samples were tested for evidence of use of marijuana, cocaine, opiates, amphetamines, and PCP. Radio-immunoassay (RIA)—a common drug-screening technique—was used to identify samples presumed to be positive; gas chromatography/mass spectrometry (GC/MS)—sometimes called the “gold standard” confirmatory test—was used to confirm the results.<sup>7</sup> Urinalysis was performed according to standard laboratory immunoassay drug-screening procedures.

As table 3 shows, positive rates based on urinalysis were generally lower than rates based on head hair, and results based on head and body hair specimens were slightly higher than the results based on head hair only.

### Drug Use by Inmate Characteristic and Offense Type

The first wave of drug tests done in 1996 provided sufficient variance in drug use to allow researchers to compare groups of inmates (see table 4), but by the second wave in 1998, the prevalence of positive drug tests was so low that similar comparisons could not be made.

**Demographic characteristics.** Drug use was comparable among African-American, Caucasian, and Hispanic inmates and was largely unrelated to the length of time the inmate had been incarcerated. Marijuana use was slightly more prevalent among inmates 35 years of age or younger, while cocaine use was highest among inmates aged 26 to 45 years. Opiate use was limited almost exclusively to those age 36 or older.

**Type of offense.** To learn more about the relationship between the offense and drug use, tests were analyzed using the PDC committing offense criterion and categorized into violent offenses (crimes against persons, including robbery), drug or alcohol crimes, property crimes, and other crimes. The analysis shows that inmates imprisoned for drug offenses may not be the most likely to test positive for drug use.

### Prisons Virtually 99 Percent Drug-Free

The second wave of tests, 24 months after the first, showed dramatic declines in prison inmate drug use. The prisons were virtually 99 percent drug-free. The declines in positive urine and hair assay results were matched by similar declines in other measures collected by PDC:

- The number of drug finds as a result of cell searches dropped 41 percent—from 1,866 to 1,109.
- Assaults on staff decreased 57 percent.
- Inmate-on-inmate assaults declined 70 percent.
- Weapons seized during searches dropped from 220 to 76.

These drops in drug use and assaults provide convincing evidence that PDC’s efforts to remove drugs from the prisons were highly successful.

## Implications for Communities

Because drug use in prisons erodes institutional authority and control, it also severely undermines the public's confidence in correctional institutions. It is disturbing to learn that inmates can continue drug consumption while serving their prison sentences.

Eliminating drugs in prisons is a crucial aspect of ensuring that prison order and safety are maintained, but perhaps most important, eliminating the problem ensures that inmates abstain from drugs during the time they serve their sentences—a necessary first step on the road to long-term abstinence with important implications for the time when inmates return home to their families and communities.

## Notes

1. National Institute of Justice, *1998 Annual Report on Drug Use Among Adult and Juvenile Arrestees*, Washington, DC: U.S. Department of Justice, National Institute of Justice, April 1999 (NCJ 175656).
2. Mumola, Christopher, *Substance Abuse and Treatment, State and Federal Prisoners, 1997*, BJS Special Report, Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, January 1999 (NCJ 172871).
3. See Title II, Subtitle A of the Violent Crime Control and Law Enforcement Act of 1994, as

amended, P.L. 103-322, as well as the 1997 and 1998 appropriations bills.

4. See Mieczkowski, Tom, and Kim Lersch, "Drug Testing in Criminal Justice: Evolving Uses, Emerging Technologies," *NIJ Journal*, December 1997 (no. 234) for a discussion of the various types of drug-testing technologies.
5. Male inmates provided either head hair or body hair, not both. Females provided head hair only.
6. Before the Drug Interdiction Program was put into place, urinalysis had been part of PDC's routine testing protocol. Results were linked to individual inmates so prison officials could identify inmates who tested positive. Compliance rates were 95 percent or higher; inmates who refused to comply were written up for refusing to obey an order. Hair tests, however, were used solely for research purposes and were not part of the Interdiction Program. The results, therefore, were kept confidential so that individual test results could not be linked to specific inmates.
7. Presumptive positive tests for opiates were confirmed using GC/MS. Results reported here as positive for morphine were confirmed by GC/MS. Four other presumptive positive opiate results were confirmed as codeine only. All results for morphine are presented using



*As part of the Pennsylvania Department of Correction's drug elimination strategy, the department's K-9 unit increased its searches of inmate housing and institutional areas. The searches have played a significant role in the detection and confiscation of illegal drugs in the State prison system. Photo: Susan McNaughton.*

the GC/MS results. For marijuana and cocaine, the RIA results are used; because of the large quantity of hair required for the marijuana GC/MS, the confirmatory test could not be performed on a number of presumptive positive samples.

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