

# Random Urinalysis Program: Policy, practice, and research results

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**U**rinalysis is a method of detecting recent drug use by looking for evidence of drugs (metabolites) in urine. In Canadian federal penitentiaries, offenders can be asked to provide a urine sample when there is reasonable grounds to suspect use; as a condition of participation in a program or activity involving community contact, as part of participation in a substance abuse treatment program, or if they have been chosen to participate in the random testing program. The purpose of this paper is to describe some of the results from the random component of urinalysis testing conducted by Correctional Service Canada (CSC).

## Background

In criminal justice settings, urinalysis has been widely adopted as a method to detect and deter drug use by offenders, to provide a baseline for assessment of current levels of drug use, to identify trends or patterns in drug use behaviour, and to identify offenders in need of treatment.<sup>2</sup> Drug use by inmates in prison threatens the safety of offenders and staff, and undermines the rehabilitation efforts of staff and offenders. In addition, chronic drug use has been identified as a factor associated with an increased likelihood of involvement in criminal activity<sup>3</sup> and, if left untreated, could increase the risk to communities to which offenders return upon release.

## History of urinalysis in CSC

In 1985 the Service first introduced regulations to allow the collection of urine samples for drug testing. A court challenge in 1987 resulted in the discontinuation of urinalysis, except where it was part of a treatment program. To address some of the legal concerns about using urinalysis for detecting drugs, rules and guidelines were written into the Corrections and Conditional Release Act of 1992 and in the accompanying regulations. In 1993, three sites were chosen to implement random urinalysis testing. A court challenge temporarily stopped the random program in the Pacific Region. Random urinalysis was introduced across the country in April 1995, however the Pacific Region did not begin random testing until August 1995, when the court challenges were resolved.<sup>4</sup>

## Selection and testing

As of July, 1996, 5% of offenders in custody are randomly selected for urinalysis each month by National Headquarters. Institutional Urinalysis Program Coordinators then have 30 days to complete the testing, but the precise timing of the collection is at the discretion of the institutional staff. Operational issues (shift schedules, offender movement, etc.) can affect the testing schedule, but testing should occur randomly throughout the selected month. If patterns occur in the distribution of tests, offenders could use this information to alter their drug use to evade detection. Analyses revealed that although testing does occur throughout the month, the first and last week consistently had lower rates of testing. In addition, analyses indicate that only 10% of tests occur on weekends, where 28% would be expected if testing was truly random.

## Limitations of urinalysis

Testing for the presence of drugs does not ensure that all instances of drug use are detected. Metabolites remain in urine for varying periods of time, as shown in Table 1. For example, evidence of opiate use will remain detectable in urine for only 1-2 days, while THC, the active ingredient in marijuana and hashish, can be detected for as long as 5 weeks after chronic use.<sup>5</sup> Furthermore, a positive urinalysis result cannot determine specifically when the drug was used, the exact dose of the drug used, or the degree or severity of impairment accompanying the drug use.<sup>6</sup>

Urinalysis can produce incorrect results if test procedures are not followed carefully. Urine samples must be, and are screened for the addition of contaminants and for dilution of samples. The testing procedure followed by collectors reduces the possibility of contamination of the sample by visual inspection, and monitoring temperature and pH (chemical balance) of the sample upon collection. Samples may be diluted by excessive consumption of fluids, however the laboratory procedures include methods to identify diluted urine samples and subject them to further testing.

Table 1

Urinary Clearance rates of some drugs of abuse		
Drug Class	Drug Name	Clearance Rate
Stimulants	Amphetamines, Cocaine, Methylphenidate (ritalin)	1-4 days
Opiates and Morphine Derivatives	Heroin, Morphine, Codeine, Meperidine (Demerol), Pentazocine (Talwin), Hydrocodone (Vicodin), Oxycodone (Percocet), Hydromorphone (Dilaudid)	1-2 days
Tetrahydrocannabinol (THC)	Marijuana, Hashish, Marinol	1 day – 5 weeks
Hallucinogens	Phencyclidine (PCP)	2-8 days
	Lysergic acid diethylamide (LSD)	8 hours-3 days
Depressants	Alcohol	6-10 hours
	Benzodiazepines (Valium, Librium, Rohypnol)	1-6 weeks
Antidepressants	Fluoxetine (Prozac)	2-4 days

### Testing positive

If offenders test positive, they can be charged with the disciplinary offence of "Taking an Intoxicant". Sanctions for this offence include one or more of the following: a warning or reprimand; a loss of privileges; a fine; performance of extra duties; or segregation from other offenders. In addition, offenders can be ordered to provide a sample each month until three consecutive negative samples have been provided. Administrative sanctions include transfer to higher security, loss of temporary absences, or referral to a substance abuse program.

### Results

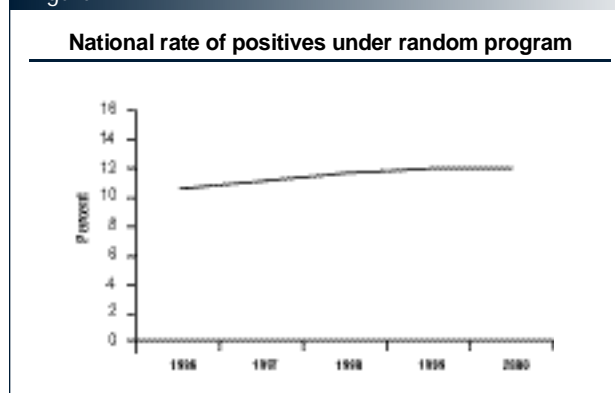
The data used for analysis included all tests requested under the random urinalysis program at each federal institution in Canada from July 1996 to March 2000. The total number of tests requested during this time period was 24,766.

### Positive rate

The national positive rate for all drugs has shown a slight increase from 11% in 1996 to 12% in 2000 (Figure 1), but this change is not statistically reliable.

Regionally, since 1996, Atlantic Canada has had the highest average positive rate (16%), followed by Quebec and Ontario (12%), and the Pacific region (10%). The Prairie region has had the lowest average positive rate (9%). In all regions, the positive rate has increased since 1996.

Figure 1



The rate of positive results in maximum security facilities has decreased slightly (from 9% to 7%), and there has been a significant increase in the percentage of positive samples from minimum security institutions, from 6% in 1996 to 14% in 2000. In medium security institutions, the positive rate has remained stable, at around 13%.

### Refusals

Offenders have the right to refuse to provide a urine sample. Refusal to provide a sample is treated as a disciplinary offence, with the same sanctions as those resulting from a positive test. The percent of offenders refusing to submit a sample for random urinalysis has increased significantly, from 9% to 14% (Figure 2). Regionally, Ontario had the largest increase in refusals since 1996, going from 5% to 15% in 2000. The highest percentage of refusals in any year has been in the Atlantic region, averaging 19% for the period of study, followed by Pacific (16%) and Quebec (13%) regions. The Prairie region has had the lowest overall rate of refusals (6%).

The highest rate of refusals has been in maximum security institutions, and has shown a significant increase since 1996 (from 16% to 29%). The lowest

Figure 2

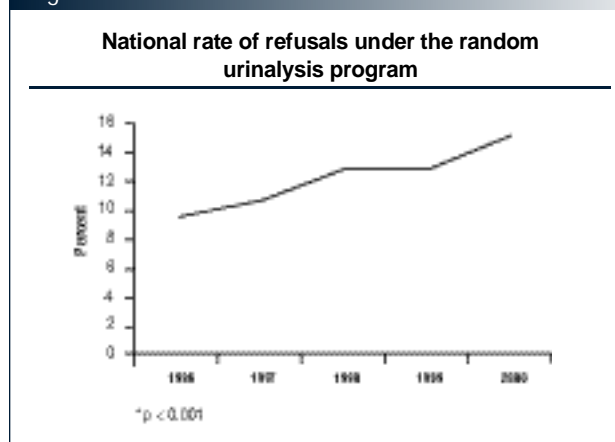
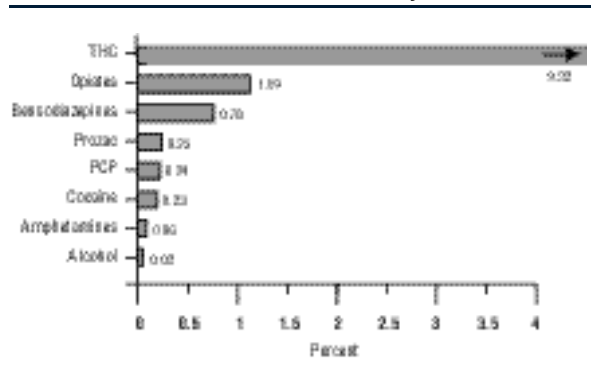


Figure 3

**Percentage of positive tests by type of drug (1996-2000)  
based on 24,766 random urinalysis tests**



refusal rate has been in minimum security institutions, averaging 2% for the testing period.

It is possible that the increasing refusal rate at maximum security institutions is related to the decrease in positive test results. Offenders may refuse to provide a sample because they have been using drugs and want to avoid detection, or for other reasons not related to drug use. To determine the effect of refusals on the positive rate a series of analyses were conducted. The first analysis treated all refusals as indicative of a positive test result and the second analysis added half of the refusals to the positive results. The change in positive rate remained similar for minimum and medium security, with a slight increase from the actual positive rate. However for maximum security institutions when half of refusals were added to the positives the downward trend in positive results reversed, and increased from 17% to 22%.

### Drug types

The majority of positive samples identified through random selection are for THC, representing 9% of all tests since 1996 (Figure 3). Opiates are the second most common drug type found, although at a much lower rate of detection, only 1% of all tests.

The data on the types of drugs found in positive samples was examined to determine any trends in use patterns over time, as there had been a concern that offenders might move from “soft” drugs, like THC to “hard” drugs, such as heroin and cocaine, to avoid detection by urinalysis. Offenders might choose to switch from THC to opiates and cocaine, due to their shorter detection time in urine. Evidence of changing use patterns would be found if there was

an increase in the percentage of samples testing positive for opiates or cocaine over the testing period, accompanied by a decrease in the percentage of samples testing positive for THC. However, there was no increase in the percentage of samples testing positive for opiates or cocaine since 1996, while a slight increase in the percentage of samples testing positive for THC was found (from 8% to 10%).

The types of drugs found in positive samples varied by region. The Atlantic region had the highest percentage of THC- and benzodiazepine- positive samples. The percentage of THC detection decreased systematically from east to west, going from 13% in the Atlantic region to 7% in the Pacific region. On the other hand, the Pacific region had the highest percentage of opiate-positive samples, (3%), followed by Ontario and the Atlantic region (2% and 1%, respectively). Quebec and the Prairies had the lowest rate of opiate detection, both at less than 1%. The rate of detection of cocaine differed slightly between regions. The highest percentage of cocaine-positive samples were found in the Quebec and Ontario regions, both at a detection rate of 0.3%.

### Discussion

The results of the random drug-testing program in federal institutions have shown that, nationally, there has been no increase in the percentage of positive tests, however there has been a significant increase in the percentage of refusals. The most common drug type found is THC, followed by opiates but at a much lower rate of detection. Regionally, there are differences with respect to the rate of drug detection, the rate of detection of different types of drugs, and the rate of refusals. Finally, there has been a significant increase in positive tests in minimum security institutions, while maximum security has shown a decreasing trend. It was also shown that refusals could, in part, account for these differences by contributing to an underestimation of drug use in maximum security facilities.

Several areas have been identified as requiring further study as a result of this preliminary analysis. Work is presently underway to examine the impact of test distribution on the results of the random drug-testing program. Future research will also develop offender profiles to identify characteristics of those that test positive for drug use, with the goal of developing more effective, targeted interventions and programs to combat drug use in prisons. ■

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- <sup>2</sup> Wish, E. D., and Gropper, B. A. (1990). Drug Testing by the Criminal Justice System: Methods, Research and Applications. In M. Tonry, and J. Q. Wilson, (Eds.). *Drugs and Crime*. (pp. 321-391). Chicago, IL: University of Chicago Press.
- <sup>3</sup> Anglin, M. D., and Perrochet, B. (1998). Drug use and crime: a historical review of research conducted by the UCLA *Drug Abuse Research Center*. *Substance Use and Misuse*, 13, p. 1871-1914.
- <sup>4</sup> Correctional Service of Canada (1998). *CCRA Review: Urinalysis Testing Program*. Ottawa, ON: Government of Canada.
- <sup>5</sup> Johansson, E., and Halldin, M. M. (1989). Urinary excretion half-life of delta 1-tetrahydrocannabinol-7-oic acid in heavy marijuana users after

- smoking. *Journal of Analytical Toxicology*, 13(4), p. 218-223; see also Cone, E. J., Welch, P., Mitchell, J. M., and Paul, B. D. (1991). Forensic drug testing for opiates: I. Detecton of 6-acetylmorphine in urine as an indicator of recent heroin exposure; drug and assay considerations and detection times. *Journal of Analytical Toxicology*, 15, p.1-7; and Cone, E. J., Menchen, S. L., Paul, B. D., Mell, L. D., and Mitchell, J. (1989). Validity testing of commercial urine cocaine metabolite assays: I. Assay detection times, individual excretion patterns, and kinetics after cocaine administration to humans. *Journal of Forensic Science*, 34, p.15-31.
- <sup>6</sup> Morgan, J. P. (1984). Problems of mass urine screening for misused drugs. *Journal of Psychoactive Drugs*, 16(4), p.305-317.

## Just released...

*The Research Branch of the Correctional Service of Canada in Ottawa recently released the following publications:*

- R-92 A Review of Marital and Family Variables as they Relate to Adult Criminal Recidivism**  
*E. Oddone Paolucci, C. Violato, and M. A. Schofield, November 2000.*
- R-93 Federal Imprisonment Trends for Women: 1994-95 to 1998-99**  
*R. Boe, C. L. Olah, and C. Cousineau, December 2000.*
- R-94 An Examination of Aboriginal and Caucasian Women Offender Risk and Needs Factors**  
*C. A. Dell and R. Boe, December 2000.*
- R-95 The Utility of Clinical and Actuarial Risk Assessments for Offenders in Pre-Release Psychiatric Decision-Making**  
*R. Serin and D. L. Mailloux, December 2000.*
- R-96 Development of a Reliable Self-Report Instrument for the Assessment of Crimonogenic Needs**  
*R. Serin and D. L. Mailloux, January 2001.*
- R-97 The Application of the Community Intervention Scale to Women Offenders: Preliminary Findings**  
*C. Dowden, R. Serin, and K. Blanchette, January 2001.*
- R-98 An Investigation into the Factors Leading to Increased Security Classification of Women Offenders**  
*J. Irving and C. Wichmann, February 2001.*
- R-99 Canadian Federally Incarcerated Adult Women Profiles Trends from 1981 to 1998**  
*C. A. Dell, R. L. Sinclair and R. Boe, February 2001.*
- R-100 A Medium-Term Federal Offender Population Forecast: 2001 to 2004**  
*R. Boe, February 2001.*