NATIONAL PRISON
AND PROBATION ADMINISTRATION
Planning and Co-ordinating Unit
Research and Development Group

URINE SAMPLE ANALYSES CONCERNING PRISON DRUG MISUSE FOR THE PERIOD AUGUST 1981—SEPTEMBER 1982

Report 1983:2

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(English version of Report no. 1983:1)
This report has been prepared by Norman Bishop

CONTENTS

FOREWORD

Urine testing has increasingly become one of the methods used in the attempt to reduce drug misuse in Swedish prisons. The report here presented shows that a considerable increase in the number of urine analyses carried out has occurred between August 1981 and September 1982 primarily at the local institu--tions. These analyses are directed at the three commonest substances - amphetamines, opiates and cannabis. The results of such analyses are of great interest since urine analysis is an objective way of assessing drug misuse.

The substance most often detected by the analysis of prisoners' urine samples was cannabis - a drug which is easily obtainable in society and is relatively cheap. On the other hand ampheta--mines or opiates were only relatively rarely found in the urine samples analysed.

It should be added that work is going forward on several projects concerning the drug problem in prisons. This work will be the subject of research studies which will in due course be published by the Research and Development Group.

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INTRODUCTION

Urine tests and urine analyses

Urine tests for illegal drug use in Swedish prisons are analysed at the State Forensic Laboratory (SFL). As a general rule SFL analyses each urine sample for the presence of amphetamines, opiates and cannabis. On occasion analyses are requested for only one or the other of these substances. With the passage of time however, it has become ever more common to request the analysis of all three sub--stances. Thus, as a rule each urine test gives rise to three analys--es.

Beginning in August 1981, SFL issues a monthly report on the previous month's analyses. This shows the prisons which have sent in urine test samples, the number of analyses per substance and prison carried out and the number of analyses in which the drug substances were de--tected (i.e. positive findings).

In this report SFL's figures have been collated and studied. It should be noted that all figures relate to urine analyses and not to urine test samples. There are certain limitations on the interpretation of the findings.

Limitations

The monthly reports from SFL give information on the number of analyses and positive findings per prison. But they give no information on the number of individual inmates who account for the analyses carried out and the positive results found. If, for example, 30 sets of analyses were carried out for a particular prison during a particular month of which 10 led to positive findings, it is impossible to say whether these sets of analyses carried out refer to 30 different inmates or perhaps 10 different inmates each of whom was urine tested three times or a combination of these possibilities. A similar difficulty exists concerning the positive findings.

Accurate assessment of the extent to which illegal drugs are used in the various prisons is naturally dependent on the number of individual inmates involved. Since this cannot be arrived at from current statistics,

the interpretation of our data is subject to some limitation.

It should be added the Administration's Planning and Co-ordination Division is currently seeking to improve the quality of drug statis--tics.

Different ways of using urine tests

Different prisons use urine testing in different ways. This has an effect upon the frequency of urine testing and probably upon that of positive findings.

At certain prisons drug free wings have been started. Inmates apply to enter them. If accepted he/she must accept urine testing daily or as good as daily. Any positive result usually means that the inmate must leave the wing and its activities. With a motivated group of inmates and a high frequency of urine testing, the expectation is that there will be a large number of analyses but few positive findings. Three national prisons (taking, in principle, the 10 % of the annual intake serving sentences of one year or more) - Hinseberg, Härlanda and Österåker - have such wings and therefore an exceptionally large number of analyses. The results of urine testing at these three prisons are shown separately from those of the other national prisons. (Three of these ordinary national prisons also have drug free wings but on a smaller scale with less effect on the number of analyses conducted).

At other prisons - both national and local - it is common to use urine testing when inmate drug misuse is suspected but denied by the inmate. Under these circumstances the number of urine tests is dependent on the real level of drug misuse in a particular prison, how often the staff suspect inmates and the extent to which such suspicions lead to urine tests. The expectation is that a relatively large proportion of the analyses will be positive.

More recently and primarily at certain local prisons (these take, in principle, the 90 % of the annual intake with sentences of less than one year) urine tests are carried out on new inmates and before leaves, work release, unsupervised leisure activities outside the prison as well as other sojourns away from the prison. Positive analyses can lead to postponement or limitation of the activity in question, at least until new tests give negative results.

Form of the report

In the first section an account is given month by month of the number of prisons sending in urine samples as well as the number of analyses carried out and those that were positive, for the period August 1981 - September 1982. In the second section the results for the entire period are described as well as the financial costs of analyses.

URINE SAMPLE ANALYSES AND POSITIVE RESULTS - TRENDS FROM AUGUST 1981 - SEPTEMBER 1982.

A number of diagrams with commentary describe the trends for the period. More detailed statistical information is to be found in the appendix.

DIAGRAM 1

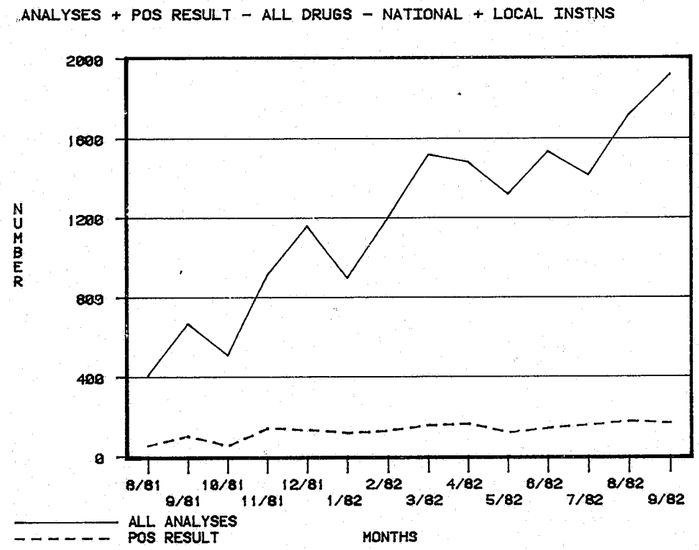

Diagram 1 shows for national and local prisons combined* and for all three substances, the number of analyses carried out each month. The monthly number of positive results is shown by the dashed line.

It is clear that a marked increase in the number of analyses carried out has occurred during the period studied. In August 1981 the number was 419 which had risen to 1 932 in September 1982. The number of prisons sending urine samples for analysis at the beginning and end of the period was 21 and 42 respectively.

The number of positive findings on the other hand showed only a slight increase during the period. In August 1981, 68 analyses were positive, 114 were positive in September 1981, 145 in December 1981, 167 in March 1982 and 176 in September 1982. As we shall later show, this increase was primarily a consequence of the number of positive findings concern-ing cannabis at local institutions.
(See also Table 1 in the appendix)

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* *With the exception of the Hinseberg, Härlanda and Österåker national prisons which are shown in diagram 7.*

CANNABIS ANALYSES + POS RESULT – NATIONAL + LOCAL INSTNS

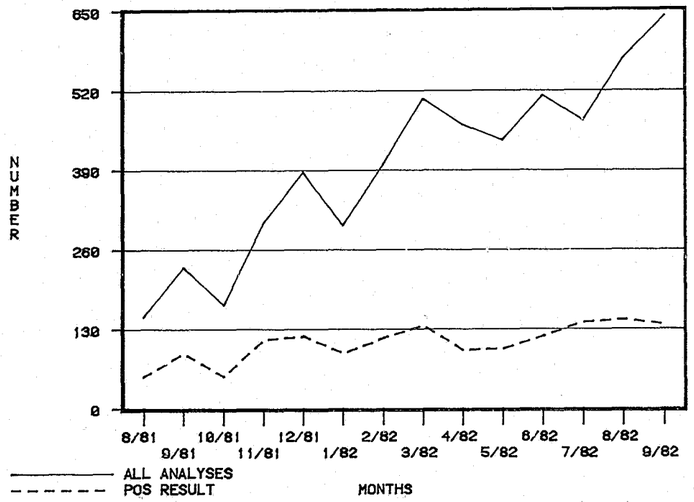

Diagram 2 shows the number of analyses and positive findings for national and local prisons combined* but only concerning cannabis. Note that the scale of the number axis is not the same as in dia-gram 1. A considerable increase occurred in the number of cannabis analyses carried out which went from 155 in August 1981 to 644 in September 1982.

There was also some increase in the number of positive results but at a lower rate than for analyses carried out. Thus, in August 1981, 56 analyses gave a positive finding and this figure went up to 140 in March 1982. In September 1982, the number of analyses with a positive result was 141.
(See also Table 1 in the appendix)

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* *With the exception of the Hinseberg, Härlanda and Österåker national prisons which are shown in diagram 8.*

ANALYSES + POS RESULT – ALL DRUGS – NATIONAL INSTNS

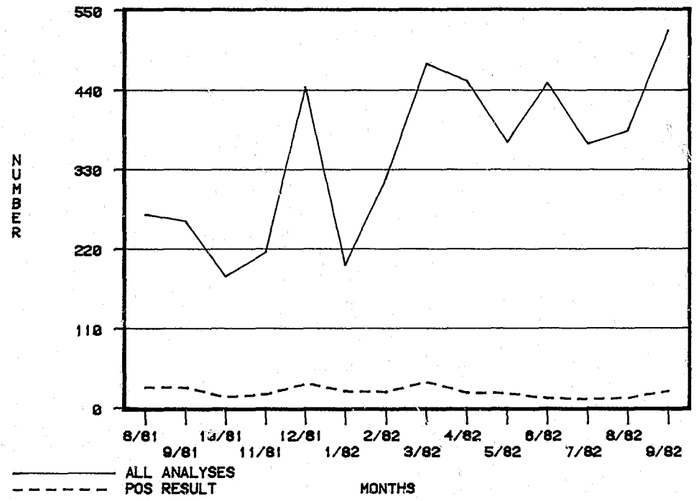

Diagram 3 shows, for the national prisons only,* the number of analyses carried out for all three substances i.e. amphetamines, opiates and cannabis. It is clear that considerable variation occurs from one month to another. The number of prisons sending in urine samples for analysis was however fairly constant – on average about 12 per month. (See Table 2 in the appendix). The number of analyses shows a tendency to increase during the period.

The number of positive results on the other hand shows no tendency to in-crease. In August 1981, 32 of 271 analyses carried out were positve. In March 1982 the corresponding figures were 39 of 480 and in September 1982 they were 26 of 525.
(See also Table 2 in the appendix)

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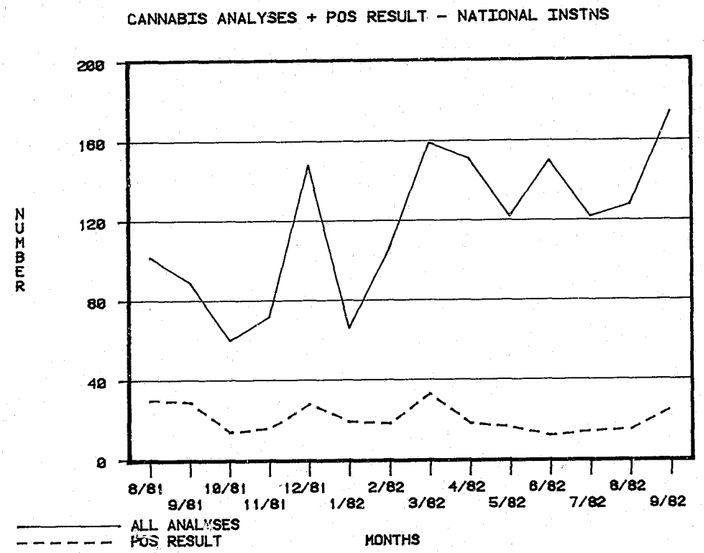
* *With the exception of the Hinseberg, Härlanda and Österåker national prisons which are shown in diagram 7.*

DIAGRAM 4



The number of cannabis analyses carried out in the national prisons* follows the same pattern as for all substances. Note however that the scale of the number axis is not the same as for diagram 3. Diagram 4 shows the same marked monthly variation with a tendency to an increase during the period. The number of cannabis analyses carried out in August 1981 was 103 and in September 1982 was 175.

The number of positive results showed no similar tendency to in-crease during the period. The highest number was found in March 1982 when 34 cannabis analyses were positive. Small variations occurred from one month to another. 31 were positive in August 1981 and 26 in September 1982.

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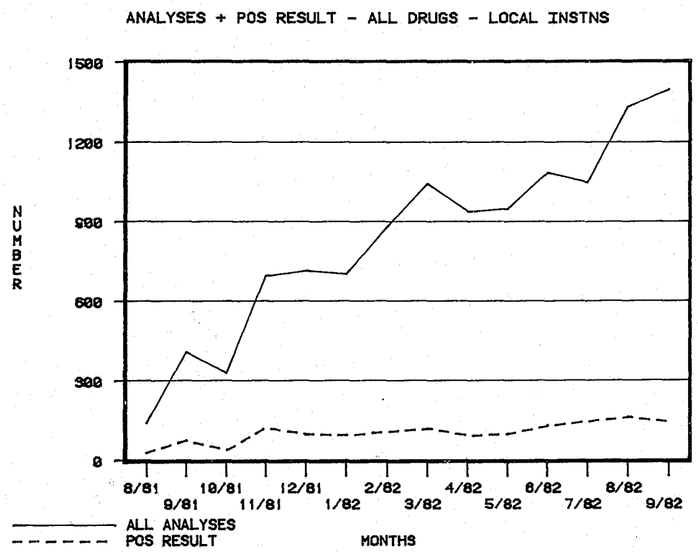
* *With the exception of the Hinseberg, Härlanda and Österåker national prisons which are shown in diagram 8.*

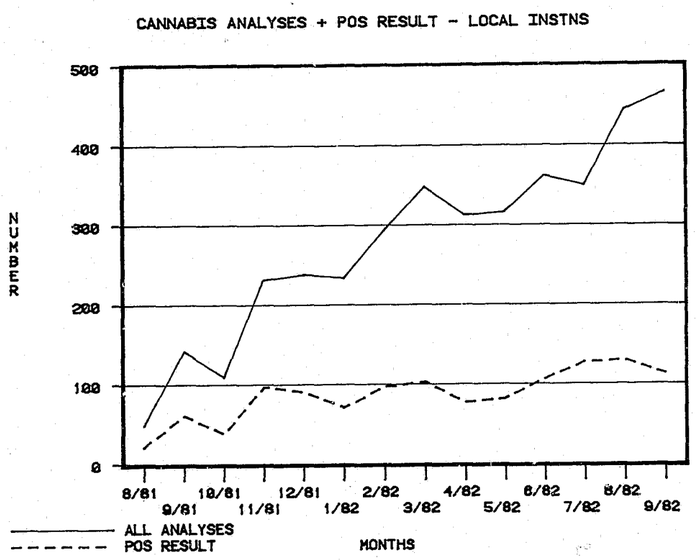
DIAGRAM 5



The number of analyses carried out and shown in the diagram are for all three substances, i.e. amphetamines, opiates and cannabis. The diagram shows that a very considerable increase occured during the period studied. In August 1981, 148 analyses were carried out. This number had risen to 1 407 by September 1982. The number of prisons involved rose from 13 to 34 during the same period. (See Table 3 in the appendix).

The number of positive findings showed a tendency to increase but at a proportionately lower rate. 36 analyses were positive in August 1981 and this number had risen to 150 in September 1982. The highest number was recorded in August 1982 - 169.
(See also Table 3 in the appendix)

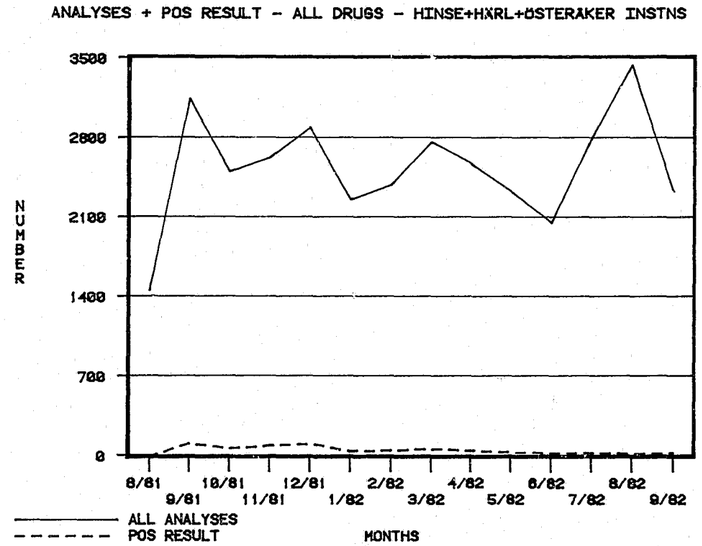
DIAGRAM 6



The number of cannabis analyses carried out follows the same pattern as for all substances (Cf. diagram 5 but note that the scale of the number axis is different). A considerable increase occurred during the period.

The number of positive findings also showed an increase though some-what less marked than the number of analyses carried out. 25 cannabis analyses were positive in August 1981 whilst the corresponding figure for September 1982 was 115. The highest numbers were recorded in July and August 1982 - 130 and 133 respectively.
(See also Table 3 in the appendix)

DIAGRAM 7



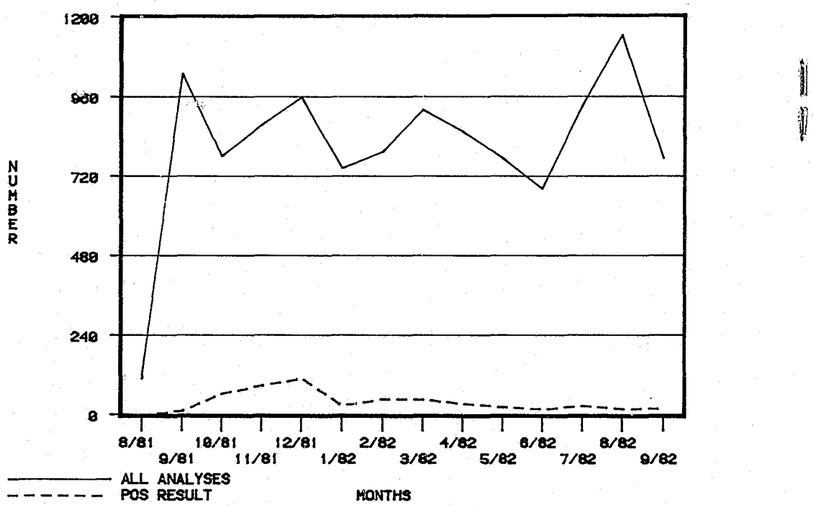
The drugfree wing at the Härlanda national prison was opened in December 1981. Prior to this date, no analyses had been carried out for this prison. At the same date management at the Österåker national prison decided slightly to restrict the number of urine samples sent for analysis because the general increase in the use of urine testing was resulting in overload at the State Forensic Laboratory.

The diagram shows that the number of monthly analyses carried out covering amphetamines, opiates and cannabis was between 2 000 - 3 000 per month with a slight tendency to a reduction during the period.

The number of positive findings diminished steadily during the period. 125 analyses were positive in September 1981, 78 were positive in March 1982 and 42 in September 1982.
(See also Table 4 in the appendix)

DIAGRAM 8

CANNABIS ANALYSES + POS RESULT - HINSE+HARL+ÖSTERAKER INSTNS



The number of cannabis analyses carried out varied between 700 - 1 000 per month with a slight tendency to reduction during the period.

The number of positive findings was highest between October and December 1981 - between 70 and 116. By January 1982 the level was clearly lower and tended thereafter to sink further. In September 1982, only 27 of 781 analyses were positive.

It should be pointed out that cannabis can be stored in body tissue and that considerable individual variation in "storage periods" has been observed. At the Österåker prison a series of successive cannabis analyses were carried out to shed light on this matter. These analyses, conducted for research purposes, made for a larger number of positive results in the statistics than would otherwise have been the case. (See also Table 4 in the appendix)

URINE SAMPLE ANALYSES AND POSITIVE RESULTS FOR THE ENTIRE PERIOD AUGUST 1981 - SEPTEMBER 1982

The analyses carried out and the positive results for the entire period are briefly described in the following pages with diagrams and a commentary. (This description can be supplemented by turning to Tables 5, 6 and 7 in the appendix.) The cost of the analyses is also given.

DIAGRAM 9

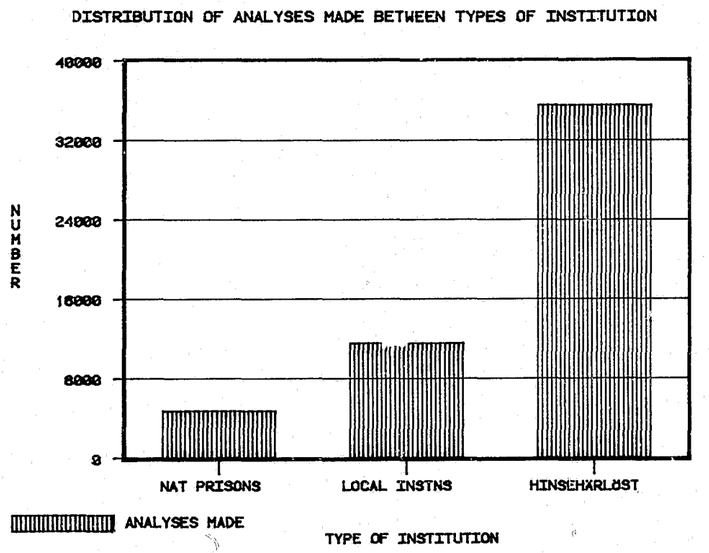


Diagram 9 shows the distribution of analyses carried out between different types of institution. The fewest analyses (nearly 5 000) were performed on samples taken in the national prisons.* Nearly 12 000 were perform ä on the samples sent from the local institu-tions. In all, 16 270 analyses were carried out on samples sent from 62 national and local prisons. Urine samples from the Hinseberg, Härlanda and Österåker national prisons gave rise to no fewer than 35 750 analyses. These three prisons thus accounted for 68 % of all prison urine analyses for the entire period.
(See also Tables 5 and 6 in the appendix)

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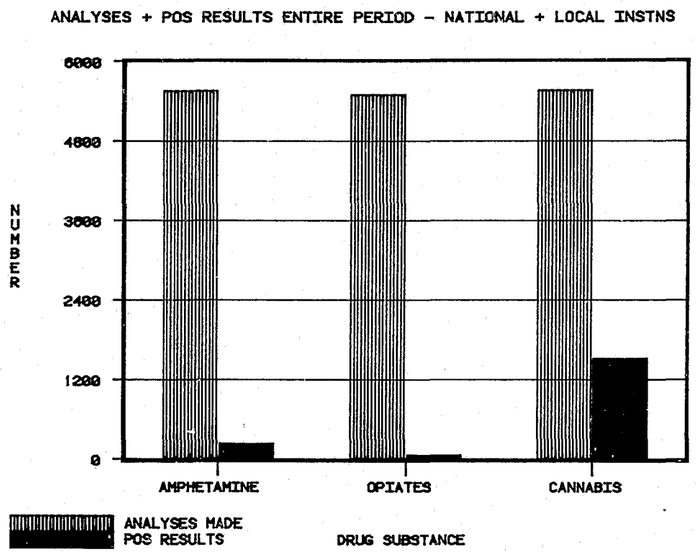
* *Hinseberg, Härlanda and Österåker excluded.*

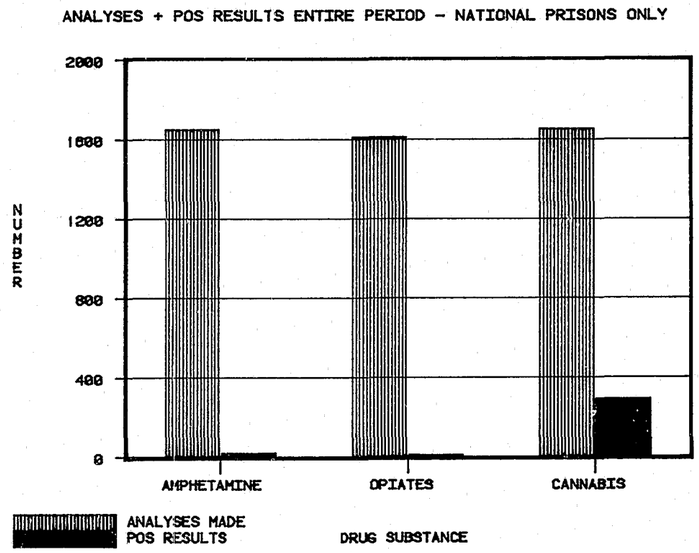
DIAGRAM 10



As mentioned, 16 720 urine analyses were carried out during the whole of the 14 month period. The diagram shows that the number of positive results concerning amphetamines and opiates is fairly low, 265 and 93 respectively. Substantially more of the cannabis analyses were positive – 1 556.

The total number of positive analyses (all substances) was 1 914 or 11,4 % of the 16 720 analyses carried out.
(See also Tables 5 and 7 in the appendix)

DIAGRAM 11



16 national prisons* sent in urine samples which gave rise to 4 947 analyses, or 9,4 % of all analyses carried out for all prisons (52 475).

Very few of the amphetamine and opiate analyses were positive and they scarcely show up on Diagram 11. Considerably more of the cannabis analyses were positive. The proportions of amphetamine, opiate and cannabis analyses that were positive were 1,8 %, 1,2 % and 18,1 % respectively.

It should be noted that two prisons, Malmö and Skogome, account for 156 of the positive cannabis results whilst the remaining 14 prisons account for 145 positive cannabis analyses. In other words 13 % of the prisons account for 52 % of the positive cannabis analyses and 87 % of the prisons account for the remaining 48 %.

The total number of positive analyses (all substances) was 351 or 7,1 % of the 4 947 analyses carried out.
(See also Tables 5 and 7 in the appendix)

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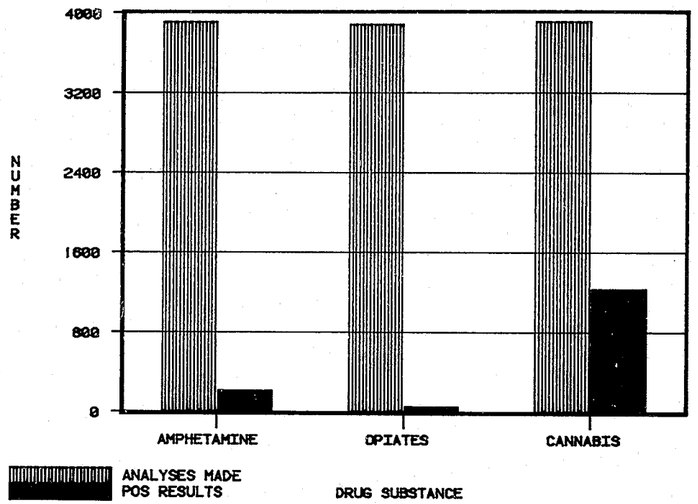
* *Hinseberg, Härlanda and Österåker prisons excluded.*

ANALYSES + POS RESULTS ENTIRE PERIOD - LOCAL INSTITUTIONS ONLY



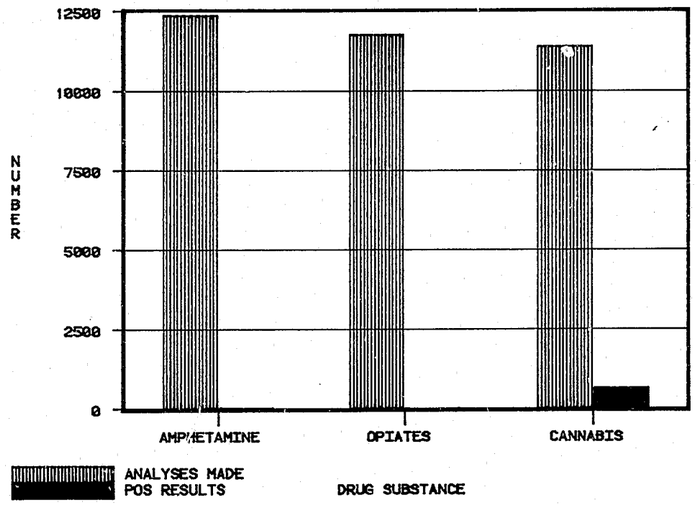
46 local institutions sent in urine samples which gave rise to 11 773 analyses or 22,4 % of all analyses carried out for all prisons (52 475).

The absolute number of positive amphetamine analyses was relatively high (235) even if the proportion (6 %) was relatively low. Both the number and proportion of positive opiate analyses were markedly lower, 73 and 1,9 % respectively. On the other hand the number and proportion of positive cannabis analyses were high, 1 255 and 31,9 % respectively.

It should be noted that six prisons - Svartsjö, Umeå, Luleå, Håga, Helsingborg and Ystad - account for 639 of the 1 255 positive cannabis analyses whilst the remaining 40 prisons account for 616. Once again, 13 % of the prisons account for 51 % of the positive cannabis analyses and 87 % of the prisons account for the remaining 49 %.

The total number of positive analyses (all substances) was 1 563 or 13,3 % of the 11 773 analyses carried out.
(See also Tables 5 and 7 in the appendix)

ANALYSES + POS RESULTS ENTIRE PERIOD - HINSEBERG+HÄRLANDA+ÖSTERÅKER



These three prisons together sent in urine samples which gave rise to 35 755 analyses or 68 % of all analyses carried out for all prisons (52 475).

98 amphetamine analyses and 70 opiate analyses were positive. Such low numbers do not show on Diagram 13. As elsewhere, more of the cannabis analyses were positive, 718 in all. The proportions of amphetamine and opiate analyses that were positive are of course extremely low - 1,3 % and 0,6 % respectively. The proportion of cannabis analyses that was positive was 6,3 %.

The total number of positive analyses (all substances) was 886 or 2,5 % of the 35 755 analyses carried out.
(See also Tables 5 and 7 in the appendix)

Cost

The National Prison and Probation Administration´s Budget Section has calculated the cost of analyses carried out for the financial year 1981/82. The total unit cost for an amphetamine or opiate analysis was 12,89 Swedish crowns but for a cannabis analysis the unit cost was 34,38 Swedish crowns. These figures have been used when calculating the cost in Swedish crowns per substance and type of prison of the analyses studied in this report. This is shown in the following table.

Type of prison	Amphetamine-analyses	Opiate analyses	Cannabis analyses	All analyses
National prisons excl Hinseberg, Härlanda, Österåker	21 410	20 921	57 174	99 505
	160 481	152 553	394 339	707 373
All national prisons	181 891	173 474	451 513	806 878
Local insti-tutions	50 684	50 374	135 217	236 275
All prisons	232 575	223 848	586 730	1 043 153

Concluding remarks

So far as national prisons were concerned, 98 % of amphetamine analyses and 99 % of opiate analyses were negative. 78 % of cannabis analyses were negative. So far as local institutions were concerned 94 % of amphetamine analyses and 98 % of opiate analyses were negative. 68 % of cannabis analyses were negative.

The findings suggest that it was cannabis which, especially at the local institutions, constituted the major drug of misuse during the period studied.

There is every indication that urine testing will be used to an even greater extent in the immediate future. In addition, the Act on Correctional Treatment in Institutions has been amended as from 1 October 1982 so that, inter alia, an inmate is obliged to give a

sample of urine when asked to do so. Refusal can lead to disciplinary punishment. Prior to 1 October 1982 there was no legal basis for the disciplinary punishment of an inmate who refused to give a urine sample when required to do so. However, such refusals could be, and often were, dealt with by transfer to another institution. Exact figures of refusals do not exist but I have no reason to suppose that they occurred with such a high frequency as to seriously affect the main findings of this study. The new circumstances make necessary a new series of urine analysis statistics. The Planning and Co-ordinat--ing Unit is currently working to improve the quality of these statistics.

APPENDIX

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Table 1 Monthly number of analyses carried out and of positive results concerning cannabis and all substances respectively, for national and local prisons combined.* Positive results given in parentheses.

Month	Cannabis	% pos	All substances	% pos	Number of institutions
8/81	155 (56)	36	419 (68)	16	21
9/81	235 (94	40	679 (114)	17	25
10/81	173 (56)	32	521 (64)	12	27
11/81	308 (117)	38	924 (153)	17	36
12/81	390 (122)	31	1 170 (142)	12	40
1/82	303 (94)	31	909 (128)	14	32
2/82	403 (119)	30	1 209 (141)	12	36
3/82	510 (140)	27	1 530 (167)	11	44
4/82	467 (99)	21	1 401 (124)	9	38
5/82	442 (102)	23	1 328 (130)	10	43
6/82	515 (122)	24	1 545 (152)	10	43
7/81	475 (145)	31	1 425 (169)	12	40
8/82	576 (149)	26	1 728 (186)	11	42
9/82	644 (141)	22	1 932 (176)	9	46

* *Hinseberg, Härlanda and Österåker prisons excluded and presented in Table 4.*

Table 2 Monthly number of analyses carried out and of positive results concerning cannabis and all substances respectively, for national prisons.* Positive results given in parentheses.

Month	Cannabis		% pos	All substances		% pos	Number of institutions
8/81	103	(31)	30	271	(32)	12	8
9/81	90	(30)	33	262	(31)	12	8
10/81	61	(15)	25	185	(18)	10	10
11/81	73	(17)	23	219	(22)	10	13
12/81	149	(29)	20	447	(37)	8	12
1/82	67	(20)	30	201	(26)	13	9
2/82	107	(19)	18	321	(25)	8	12
3/82	160	(34)	21	480	(39)	8	12
4/82	152	(19)	13	456	(24)	5	12
5/82	123	(17)	14	371	(23)	6	12
6/82	151	(13)	9	453	(16)	4	12
7/82	123	(15)	12	369	(15)	4	14
8/82	129	(16)	12	387	(17)	4	12
9/82	175	(26)	15	525	(26)	5	12

* *Hinseberg, Härlanda and Österåker prisons excluded and presented in Table 4.*

Table 3 Monthly number of analyses carried out and of positive results concerning cannabis and all substances respectively for local institutions. Positive results given in parentheses.

Month	Cannabis		% pos	All substances		% pos	Number of institutions
8/81	52	(25)	48	148	(36)	24	13
9/81	145	(64)	44	417	(83)	20	17
10/81	112	(41)	37	336	(46)	14	17
11/81	235	(100)	43	705	(131)	19	23
12/48	241	(93)	39	723	(105)	15	28
1/82	236	(74)	31	708	(102)	14	23
2/82	296	(100)	34	888	(116)	13	24
3/82	350	(106)	30	1 050	(128)	12	32
4/82	315	(80)	25	945	(100)	11	26
5/82	319	(85)	27	957	(107)	11	31
6/82	364	(109)	30	1 092	(136)	13	31
7/82	352	(130)	37	1 056	(154)	15	26
8/82	447	(133)	30	1 341	(169)	13	30
9/82	469	(115)	25	1 407	(150)	11	34

Table 4 Monthly number of analyses carried out and of positive results concerning cannabis and all substances respectively, for the Hinseberg, Härlanda and Österåker prisons combined. Postive results given in parentheses.

Month	Cannabis	% pos	All substances	% pos
8/81	117 (5)	4	1 473 (8)	1
9/81	1 036 (18)	11	3 156 (125)	4
10/81	789 (70)	9	2 518 (77)	3
11/81	881 (95)	11	2 643 (106)	4
12/81	967 (116)	12	2 903 (122)	4
1/82	750 (34)	5	2 272 (55)	2
2/82	801 (54)	7	2 403 (63)	3
3/82	926 (52)	6	2 778 (78)	3
4/82	862 (39)	5	2 586 (58)	2
5/82	781 (29)	4	2 343 (45)	2
6/82	689 (23)	3	2 067 (36)	2
7/82	938 (33)	4	2 814 (40)	1
8/82	1 152 (23)	2	3 456 (31)	1
9/82	781 (27)	4	2 343 (42)	2

Table 5 Number of analyses carried out and of positive results (in parentheses) for the entire period August1981 - September 1982 by type of prison and substance

Type of prison	Amphetamines	Opiates	Cannabis	All substances
National prisons*	1 661 (30)	1 623 (20)	1 663 (301)	4 947 (351)
Local institutions	3 932 (235)	3 908 (73)	3 933 (1 255)	11 773 (1 563)
Total	5 593 (265)	5 531 (93)	5 596 (1 556)	16 720 (1 914)
Hinseberg	4 656 (42)	4 247 (30)	4 217 (147)	13 120 (219)
Härlanda	1 066 (11)	1 066 (1)	1 066 (110)	3 198 (122)
Österåker	6 728 (45)	6 522 (39)	6 187 (461)	19 437 (545)
Total	18 043 (363)	17 366 (163)	17 066 (2 274)	52 475 (2 800)

Table 6 Distribution of analyses carried out for the entire period August 1981 - September 1982 as a percentage of the total number of analyses carried out, by type of prison and substance

Type of prison	Amphetamines	Opiates	Cannabis	All substances
National prisons*	3,2	3,1	3,2	9,4
Local institutions	7,5	7,4	7,5	22,4
Total	10,7	10,5	10,7	31,9
Hinseberg	8,9	8,1	8,0	25,0
Härlanda	2,0	2,0	2,0	6,1
Österåker	12,8	12,4	11,8	37,0
Total	34,4	33,1	32,5	100

* *excluding Hinseberg, Härlanda and Österåker*

Table 7 Percentage proportions of positive results for the entire period August 1981 - September 1982 as a percentage of the total number of analyses carried out, by type of prison and substance

Type of prison	Amphetamines	Opiates	Cannabis	All substances
National prisons *	1,8	1,2	18,1	7,1
Local institutions	6,0	1,9	31,9	13,3
Total	4,7	1,7	27,8	11,4
Hinseberg	0,9	0,7	3,5	1,7
Härlanda	1,0	0,0	10,3	3,8
Österåker	0,7	0,6	7,5	2,8
Total	2,0	0,9	13,3	5,3

* *excluding Hinseberg, Härlanda and Österåker*

END