

IV. PASSPOINT DRUG SCREENING

The need for frequent drug use monitoring to deter drug use among drug court clients has been listed as a best practice by the National Drug Court Institute (NDCI). It has been supported by the results of previous research studies, including those conducted by ISED Solutions. Recognizing the need to increase drug use monitoring, but also recognizing that substantially increasing the frequency of urinalysis testing would exceed the budget for this activity, the Douglas County Drug Court implemented retinal-based drug screening in November 2004.

The system selected is called *PassPoint*TM, as provided by Drug Impairment Detection Services, LLC. *PassPoint*TM is designed to be used to screen for non-use of drugs. Clients subjected to PassPoint screening need to have a “baseline” of verified non-use established, in order for the automated PassPoint system to detect retinal measure departures from the non-use baseline; departures which have been shown to be indicative of a high likelihood of drug use. The ideal client for PassPoint is one who has ceased regular use of drugs and therefore can have a stable baseline of non-use established. Note that this does not fit the profile of every drug court client, so it was important to this evaluation to see whether the use of PassPoint with typical drug court clients could improve the detection and deterrence of drug use.

This chapter documents the results of our analysis of PassPoint drug screen and Redwood Laboratory urinalysis (UA) data from December 1, 2004 through March 11, 2005—a period of 100 days. For this analysis, we extracted data on 315 cases that were in the PassPoint pilot study through March 11, 2005 and were documented in the drug court MIS. Two hundred six (206) cases were treatment group cases—they had at least one PassPoint screen-Redwood UA paired result. One hundred nine (109) cases were control group cases—they only had Redwood UA results.

Our analysis addressed four questions based on the data at hand. (1) How much more frequent was drug screening/testing under PassPoint as compared with drug testing in the absence of PassPoint? (2) How accurate was PassPoint in screening clients for drug use? (3) To what extent did the implementation of PassPoint deter drug use? (4) Will the use of PassPoint save the drug court money? Our findings are reported below.

1. How Much More Frequent Was Drug Screening/Testing Under PassPoint as Compared with Drug Testing in the Absence of PassPoint?

The implementation of the PassPoint technology led to a greatly increased frequency of drug screening/testing with drug court clients. In the absence of PassPoint, a typical control group client had UA testing about once every two weeks. With PassPoint, a typical treatment group client was screened about twice a week.¹⁵ In addition, treatment group clients had UA testing

¹⁵ Control group clients averaged one UA every 12.3 days. Treatment group clients averaged one PassPoint screen every 4.1 days. These statistics are for UAs and PassPoint screenings with clearly documented results. UA or screening results which were not documented or were ambiguously worded are not included. Thus, these statistics somewhat underestimate the true frequency with which clients came in for UAs and PassPoint screens.

about once every three weeks. Thus, PassPoint led to much more frequent drug screening/testing as compared with traditional UA testing in the absence of PassPoint.

2. How Accurate Was PassPoint in Screening Clients for Drug Use?

In our analysis, we make the assumption that Redwood UA results are accurate. Thus, a PassPoint “high risk” result paired with a positive UA is a “true positive.” A PassPoint “low risk” or “pass” result paired with a negative UA is a “true negative.” A PassPoint “high risk” result paired with a negative UA is a “false positive.” A PassPoint “low risk” or “pass” result paired with a positive UA is a “false negative.” Note that false negative results are important, because they indicate failure to accurately screen for drug use, and thus can lead to a failure to take timely actions to stem that use.

As shown in Table IV.1, PassPoint screening had an overall accuracy rate of 332 of 1,252 paired results or 27 percent. PassPoint indicated “high risk” for 200 of the 222 (90 percent) UA positives, and indicated “low risk” or “pass” for 132 of the 1,030 (13 percent) of the UA negatives. The false positive rate was 87 percent (898 out of 1,030 UA negatives). The false negative rate was 10 percent (22 out of 222 UA positives). False negatives constituted only two percent of all PassPoint-UA paired procedures.

Table IV.1
Paired PassPoint-UA Results

Redwood UA result	PassPoint Screen Result		
	High Risk	Low Risk	Total
UA Positive	“True Positive” 200 of 1,252 (16 %) 200 out of 222 true positives (90 %)	“False Negative” 22 of 1,252 (2 %) 22 out of 222 true positives (10 %)	222 (18 %)
UA Negative	“False Positive” 898 of 1,252 (72 %) 898 out of 1,030 true negatives (87 %)	“True Negative” 132 of 1,252 (11 %) 132 out of 1,030 true negatives (13 %)	1,030 (82 %)
Total	1,098 (88 %)	154 (12 %)	1,252

Note: Table statistics are for 206 treatment group clients who had paired PassPoint-UA results. Twenty-nine out of 1,281 observations (2 percent) had a “dilute” result and were dropped from this analysis.

No shows also have an impact on UA and PassPoint screening frequencies. Eleven percent of control group UA appointments and six percent of PassPoint screening appointments resulted in a no show.

The results from our analysis confirm that PassPoint technology errs on the side of caution and, as stated above, this is appropriate considering the intended uses of the drug screen by the drug court. Though there were only 22 instances out of 1,252 (2 percent) where there was a failure to predict drug use, the fact that this also represents 22 instances out of 222 (10 percent) where drug use was subsequently identified seems cause for further monitoring of PassPoint accuracy.

The false positive rate in the broader analysis is of some concern because each PassPoint “high risk” result leads to a UA and its attendant cost. Given the goal of implementing PassPoint to reduce UA costs, a high false positive rate impedes the achievement of that goal. It should be noted that some false positives are inevitable due to the fact that the Redwood 8-panel tests do not test for all drugs, so some PassPoint “high risk” results may point to use of drugs other than the ones tested with the Redwood 8-panel procedure. Also, as noted above, PassPoint is ideally implemented with clients who have already ceased regular drug use. The clients included in the pilot study represented typical drug court clients—no special steps were taken to restrict the use of PassPoint to clients who had demonstrated success in the drug court program, as evidenced by low positive drug tests rates and drug court phase progression.

3. To What Extent Did the Implementation of PassPoint Appear to Have Deterred Drug Use?

Under normal circumstances, clients who undergo PassPoint screening may appear to have higher rates of UA test positives than clients who do not undergo such screening due to the fact that under PassPoint, follow-up UAs are typically administered only if there is a “high risk” PassPoint result. Thus, to measure any PassPoint drug use deterrence effect, a “blue group” of 31 clients was selected from the larger treatment group of 206 clients. From February 7 to February 18, 2005, each blue group client PassPoint screen was followed by a UA. Since PassPoint baselining started in November 2004 for all “blue group” members, the clients undergoing both PassPoint screening and UA testing were used to the procedure, and informed that there was a high likelihood that any drug use would be detected.

To measure screening deterrence, we compared UA positive rates between “blue group” clients who received both PassPoint screening and UA testing and control group clients who underwent traditional UA testing without PassPoint screening. We restricted comparisons to UA results obtained during the February 7-18 time period. We ended up with clearly interpretable UA results for 30 blue group clients and 62 control group clients. Six out of 30 (20 percent) blue group clients with one or more UAs tested positive one or more times. Blue group clients had a positive UA test rate of 12 percent (18 positives out of 152 UAs).¹⁶ Seven out of 62 (11 percent) control group clients with one or more UAs tested positive one or more times. Control group clients also had a positive UA test rate of 12 percent (12 positives out of 99 UAs).¹⁷

¹⁶ The UA positive rate for treatment group clients over the entire course of the PassPoint pilot study (12/1/04 to 3/11/05) was 17 percent (222 positives out of 1,281 UAs).

¹⁷ The UA positive rate for control group clients over the entire course of the PassPoint pilot study was 11 percent (94 positives out of 841 UAs).

The results of this analysis provide no direct evidence that PassPoint screening deters drug use, at least in the short term. It should be noted, however, that the experimental time period of 11 days was rather brief to observe longer-term drug use deterrence effects attributable to PassPoint screening.

Instead, it seems likely that continuing monitoring of drug use rates, as inferred by PassPoint screen and UA test results, will be required in order to see whether drug court client drug use rates continue to decline and remain below historical rates. Examination of all treatment group PassPoint screen and UA test results from December 1, 2004 to March 11, 2005 may provide some indication of the ongoing drug use trend. If one assumes that PassPoint “low risk” screens are indicative of no drug use about 98 percent of the time (2 percent false negative rate over all screens) then the treatment group results suggest a drug use rate of 6.6 percent,¹⁸ 4.4 percentage points lower than the control group rate¹⁹ over the same time period, as determined from UA test results. Note that the combined treatment and control group drug use rate over the pilot study period was 7.4 percent—substantially lower than the historical drug court positive UA test rate of 28 percent.²⁰

4. PassPoint Cost Savings

We used PassPoint pilot study data to calculate scenarios of drug screening/testing costs for the drug court. Costing scenarios were based on an estimate of the number of clients available for testing at any given time (250), the cost per Redwood UA (\$6.00 each), as well as assumptions regarding the frequency of PassPoint screening, the proportion of PassPoint screens that yield “high risk” outcomes,²¹ and the percent of the time that UAs would be conducted following PassPoint “low risk” or “pass” results, due to counselor discretion. (We assume that all PassPoint “high risk” results would be followed by a UA.)

Table IV.2 on the following page shows four drug screening/testing costing scenarios, illustrating the effects of PassPoint and UA frequency on monthly and annual drug screening/testing costs. In these scenarios, the impact of PassPoint drug screening on total drug screening/testing costs depends on both the fixed cost of PassPoint (\$42,000 per year) and the frequency of UAs that follow PassPoint screens. Given PassPoint, UA frequency is a function of the frequency of PassPoint screening, the proportion of screens that have a “high risk” outcome (all of which result in a UA), and the proportion of “low risk” or “pass” screens which also result in a UA, due to counselor discretion. Total costs rise as the frequency of PassPoint screening and discretionary UAs increase.

¹⁸ Our calculation of the treatment group drug use rate of 6.6 percent is based on 222 positive UA tests + 61 of 3,027 “low risk” PassPoint screens (assuming a 2 percent false negative rate) = 283 positives out of 4,279 drug screen/test procedures.

¹⁹ Over the PassPoint pilot study period, there were 94 positives out of 841 UA tests for a 11.2 percent positive test rate.

²⁰ This rate of positive UA tests applies to drug court clients documented in the drug court MIS as of May 13, 2005, which reports 12,741 positives out of 45,396 documented drug tests.

²¹ During our analysis tracking period, a total of 4,297 interpretable PassPoint screens were conducted, resulting in 1,098 “high risk” outcomes or a proportion of “high risk” outcomes of .257.

Note that the cost scenarios shown below do not factor in the additional personnel costs of managing and administering the PassPoint system. We have been informed that these costs are slight, largely due to the fact that no additional personnel FTEs have been needed to date to implement PassPoint.

**Table IV.2
Drug Screening/Testing Costing Scenarios**

Scenario	PassPoint	UA	Total	Monthly Costs			Annual Costs		
	Frequency	Frequency	UAs per Month	PP	UA	Total	PP	UA	Total
(1)	None	0.74 x week ^a	800	NA	\$4,800	\$4,800	na	\$57,600	\$57,600
		1 x week	1,083	NA	\$6,495	\$6,495	na	\$77,940	\$77,940
		2 x week	2,165	NA	\$12,990	\$12,990	na	\$155,880	\$155,880
(2)	1 x week	PP high risk only	278	\$3,500	\$1,667	\$5,167	\$42,000	\$20,000	\$62,000
	2 x week	“	556	\$3,500	\$3,333	\$6,833	\$42,000	\$39,999	\$81,999
	3 x week	“	833	\$3,500	\$5,000	\$8,500	\$42,000	\$59,999	\$101,999
						\$			
(3)	1 x week	All PP high risk & 5 % of low risk	318	\$3,500	\$1,908	\$5,408	\$42,000	\$22,897	\$64,897
	2 x week	“	636	\$3,500	\$3,816	\$7,316	\$42,000	\$45,793	\$87,793
	3 x week	“	954	\$3,500	\$5,724	\$9,224	\$42,000	\$68,690	\$110,690
						\$			
(4)	1 x week	All PP high risk & 10 % of low risk	358	\$3,500	\$2,149	\$5,649	\$42,000	\$25,794	\$67,794
	2 x week	“	716	\$3,500	\$4,299	\$7,799	\$42,000	\$51,587	\$93,587
	3 x week	“	1,075	\$3,500	\$6,448	\$9,948	\$42,000	\$77,381	\$119,381

a. This is the UA frequency of the active drug court caseload, based on MIS data current through November 2004.

In thinking about the cost scenarios shown in Table 3, we have in mind the objective of obtaining twice-weekly drug screening/testing for each client while staying within an annual drug screening/testing budget of approximately \$85,000. With this in mind, the scenarios shown in Table 3 suggest the following.

- The drug court cannot monitor client drug use as frequently as twice per week doing urinalysis testing alone. Twice-weekly UA testing of drug court clients would cost nearly \$156,000 per year. At best, UA testing could be conducted an average of 1.09 times per week per client, while still staying within the \$85,000 budget.

- Twice weekly testing of drug use can be achieved at close to the budget figure using PassPoint screening, UA testing for all clients who obtain a “high risk” PassPoint result, as well as UA testing for 5 percent of clients who obtain a “low risk” PassPoint result (counselor discretion). The total projected cost of this option would be \$87,793 per year. (Reducing discretionary UA testing to 2.5 percent of clients who obtain a “low risk” PassPoint result would lower the drug screening/testing annual cost to \$84,896—a figure that is within the projected drug testing budget of \$85,000.)
- Additional UA testing can be done within budget if the PassPoint “positive” rate can be lowered (e.g., by reducing false positives). For example, a reduction in the positive rate from 25.7 percent of all screens to 20 percent of all screens would enable the drug court to increase discretionary UA testing to about 9.5 percent of clients who obtain a “low risk” PassPoint result.

In sum, the data at hand suggest that the drug court can increase the cost-effectiveness of drug testing by implementing PassPoint as a key component of an integrated drug screening and drug testing system. The introduction of PassPoint can enable the drug court to conduct drug screening/testing nearly three times as often as has been done in the past, thus greatly increasing client drug use monitoring and deterring drug use—a major goal of the drug court program.

Finally, as noted above, PassPoint is ideally used as a screen for continued non-use of drugs. The ideal PassPoint client is one who has already demonstrated progress in the program through a (verified) prolonged period of non-use. If PassPoint is used primarily with these types of clients, there should result a much lower percentage of “false positives,” thus leading to fewer UAs and lower costs. The drawback of using PassPoint in this fashion, however, is that there is then no cost-saving screening mechanism for use with the higher-risk clients who have yet to demonstrate a prolonged period of non-use. Should the drug court decide to retain PassPoint, the challenge will be to identify the optimal way of incorporating this technology into the drug court’s current system of drug use monitoring, so as to maximize drug use detection and deterrence, while staying within the budget allocated for this activity.