

A Survey of Probation Officers Concerning the Use of Hair Testing for Illicit Substances

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Abstract:

A first of its kind survey was recently administered to probation and parole officers with the Virginia Department of Corrections concerning the use of hair testing for illegal substances by their clients. Sixty three officers responded to a survey that included thirteen quantitative measures and sixteen open-ended questions on the topic of hair testing in the field. Among the results of the survey are that officers were overwhelming in their support for the use of hair testing. They expressed confidence in the results of hair testing and the majority preferred it to testing based on urinalysis. The respondents were part of a federally-funded research project on the use of hair testing that was conducted over four years and which administered over 2,200 hair tests to probationers and parolees. We conclude that while hair testing is well liked by participating officers and is widely used as a preemployment screening device, a comprehensive testing policy based on hair analysis is yet to be implemented in a corrections setting, and it is unlikely to be implemented in the immediate future because of cost concerns and bureaucratic status quo.

The monitoring of subjects under community supervision for the use of illegal drugs is a ongoing task for the modern probation and parole officer in America. The most common means of detecting drug use in use today is based on an analysis of body fluids. Urinalysis is the preferred means of detection by most supervising authorities but new methods have been developed which include the analysis of saliva, perspiration and, in rare cases, the use of a blood sample. In the late 1970s, an innovative technology based on the analysis of a hair sample was patented and began the process of acceptance in the scientific, professional and legal communities as a valid and reliable means of detection (Ditton, 2002).

Funding for research on the use of hair analysis in a field setting was obtained in 1998 and over the course of the next four years, Virginia officers submitted 2,261 hair samples to the participating vendor. Of that number, 667 samples tested positive for cocaine, marijuana, amphetamines, opiates and/or PCP. One hundred and fifty nine samples were returned as quantity not sufficient for testing. Approximately thirty-two percent of the valid sample (2,102) tested positive for one or more of the listed drugs (see Figure 1). Cocaine was the most commonly reported drug, reported in 58% of the positive samples, followed by marijuana (36%), opiates (3%), amphetamines (3%), and PCP (less than 1%). These patterns are similar to those reported in other studies (Baer et al, 1991; Knight et al, 1995; Mieczkowski et al, 1993) for similar populations.

Figure 1. Overall Results, January 2000-March 2003

N = 2,261

QNS = 159

Valid N = 2,102

Positives = 667 (31.7%)

(cocaine, marijuana, opiates, amphetamines and/or PCP)

Negatives = 1,435 (68.3%)

As a part of our research, we mailed a survey to 130 probation and parole officers, drug court counselors and drug-rehabilitation workers during the spring of 2001. The officers included in the sample had recently completed a four hour training program on the use of hair testing and were practiced in the collection of hair samples for drug testing. The results of the survey show that the participating officers are well satisfied with the use of hair testing and many added unsolicited comments on the survey indicating such satisfaction.

This article will first describe the basic stages in the hair testing process and will include brief comments on the techniques utilized in the process. For a more detailed discussion of the controversies concerning sample collection, testing procedures and other issues surrounding hair testing see variously Mieczkowski, (2000); Smith and Goodman (1996); or, Baumgartner and Hill (1996). In this article, we wish to focus on the perceptions of officers who have used the technology in the field. We summarize the responses to thirteen questions that asked the officers to rank-order preferences and policy recommendations. We also include some summary of sixteen open-ended questions that are exploratory in nature. We conclude with some comments on where hair testing is in the process of criminal justice policy implementation and make some predictions about the future of hair testing in American corrections.

The Hair Testing Procedure

The standard process of hair analysis includes the following steps: specimen collection, sample washing, digestion or extraction of the hair sample, immunoassay screening, and confirmation or quantitation of the various analytes (Henderson et al, 1995).

The process of testing hair for drugs in our research begins with the collection of approximately 100 strands of hair from the client by the supervising officer. The sample is labeled in the client's presence and placed in a specialized envelope for shipment to the lab for analysis. Hair samples do not require refrigeration and can be shipped at later date. They should be placed in a secure area, such as a safe or locked filing cabinet in order to maintain the chain of custody.

Laboratory processing consists of three basic stages—sample preparation, initial testing, and confirmation testing. Each stage is an important process and some techniques are patented. Testing results can be returned to the collector via surface mail; they can also be faxed, phoned

or viewed over the Internet at a secure, password-coded site. In our experience, all positive results were reported within three days of receipt of the sample by the lab—negative results had a quicker turnaround time.

The Sample Preparation Phase

The procedure of sample preparation focuses on chain of custody, contamination control, and dissolution of the sample into a medium appropriate for testing. The procedure varies by vendor, but these basic steps are necessary for accurate testing. Identification of sample is the primary step to establish a legal chain of custody.

Contamination control implies two things. First that the sample is prepared in a controlled environment to prevent cross-contamination with other hair samples in the laboratory environment. Second, it implies confidence that a positive test result is the consequence of drug ingestion and not a result of external contamination of the hair sample. To control for the possibility of external contamination, our vendor utilizes “a three hour and forty-five minute wash in six chemical solutions” as stated on the vendor’s website and as observed during a tour of the testing facility. The effluent from the hair wash is preserved for subsequent analysis if the sample tests positive. This process is generally referred to as wash kinetics and is generally used to assess the potential of passive exposure and thus refute the argument of external contamination (Mieczkowski, 1992).

The culminating stage in the preparation process requires the hair sample to be put into solution for analysis. The one and one-half inches of the hair nearest to the root end is put into solution in a process sometimes referred to as “being digested”. The remainder of the hair sample is discarded. Digestion methods may be patented, and different solvents and processes are utilized by various vendors. Once the hair is liquified, the initial testing stage can begin.

The Initial Testing Phase

The initial testing phase, sometimes referred to as the screening phase, utilizes a patented technique of immunoassay. In general, immunoassay techniques “tag” the sought-after chemical substance (referred to as the antigen) with a uniquely altered antibody. Some of the more common tags are enzymes (as in enzyme-multiplied immunoassay test), fluorescent materials (as in fluorescent polarization immunoassay) or radioactive materials as used in the hair testing procedure.

The antibody and antigen are combined in solution. The antigen-antibody compound will precipitate out of solution and the resultant “button” is assessed and the quantity of antigen inferred from the amount of antibody detected. The antigens may be parent drugs or metabolites from the drug ingestion process in the body. This technique is used to identify substances of abuse in urine, as well as hair.

The sample is retested following a positive result. The sample will also undergo wash kinetics and confirmation testing. Wash kinetics is a separate analysis of the solution used to wash the

initial sample of hair and is considered to be a means of ruling out the possibility of external contamination of the hair sample. All three techniques are meant to rule out false positives.

The Confirmation Phase

The confirmation phase generally utilizes the techniques of mass spectrometry and/or gas chromatography. These analysis techniques are expensive, time consuming and labor intensive. Only those samples that test positive in the initial phase are subjected to confirmation.

Implementation of the Survey

An important part of field research is the measurement of the participants' perceptions of the process. We considered it to appropriate to take notice of the acceptance or non-acceptance by field officers of this new and innovative technology. Failure on the part of field officers to utilize hair analysis would curtail the effectiveness of the technology and would prevent valid evaluation of the technique. As a consequence, the researchers developed a questionnaire and disseminated it to over 130 Probation and Parole Officers, drug courts counselors and various other Virginia state drug-rehabilitation workers in the spring of 2001. The officers were selected for inclusion in the survey based on their successful completion of a short training program on the use of hair testing. Sixty three surveys were returned for analysis.

All of the officers in the sample had undergone accredited training for hair sample collection during the course of the grant period.. Five surveys by trained officers who had not collected a hair sample in the field were not included in the following analysis. These officers provided positive comments regarding training and the overall concept of hair analysis. The following summary is based on 58 returned surveys. The respondents collected between ten and fifteen hair samples on average.

From the start, we implemented a comprehensive approach for addressing officer concern over the use of hair analysis. The contracting service, Psychomedics, provided a standardized training course of about four hours to all participating officers. Any questions that the officers asked during the course of that training were answered by the Psychomedics trainer at that time. The officers were given Officer Callahan's office number and email address should they have any during the course of collecting hair for analysis or when they received the results from the lab. As might be expected, numerous questions were asked during the four-hour training session, but few follow-up questions were asked of Officer Callahan once the trained officers returned to the field. We took that as an indication of the adequacy of training, the ease of the collection method and the simplicity of interpreting the results provided by the lab.

Ease of use was only one dimension that we wished to measure. Another important dimension was the officer's "satisfaction" with the technique and their confidence in its use. A final dimension of interest was the officer's opinion on how to use hair testing in the field. We asked

a number of questions about policies that allowed mandatory or discretionary use of hair testing by probation and parole officers.

Quantitative Responses on the Survey

The survey included 13 quantitative responses (on a scale from 1 to 10) and 16 qualitative or written opinion responses. The quantitative responses fell into the following topical categories.

Overall Satisfaction: Questions 1 & 2

Overall ratings of hair testing are positive, as evidenced by the responses to Question 1. The average score on a scale of 1-10 is 8.4. The range of the responses was 5-10, which indicates that no officer responded negatively, in that 5 is generally considered to be a neutral response. We believe that the respondents are well satisfied with the use of hair testing and indeed many added positive and enthusiastic comments on the survey indicating such satisfaction. A majority of respondents preferred the use of hair testing over urine testing, as evidenced by the responses to Question 2 (mean = 7.8).

Policy Recommendations: Questions 5, 6, 7, & 8

A number of questions were asked of the officers concerning policy implications and the proposed use of hair testing as a replacement for, or supplement to, urinalysis. Question 3 shows that most officers would not recommend that hair testing be used as the sole means of monitoring offenders (mean = 5.3). Rather, they are very supportive of a policy which utilizes hair testing as a supplemental means of monitoring offenders (mean = 8.7).

Question 5 (mean = 6.6) and Question 6 (mean = 7.5) addressed the timing of hair testing. The officers seemed somewhat neutral on testing all new probationers immediately following sentencing but were more positive on conducting semi-annual testing.

Finally, Questions 7 and 8 indicate that the majority of officers would be in favor of a policy which allows the supervising officer to hair test at her or his discretion. The responses indicate that the officers would not be in favor of mandatory testing but would prefer to exercise their professional discretion when determining the need for hair testing. These responses do not preclude the implementation of a policy that mandates testing at certain stages in the process and which also allows officer the discretion to use supplemental tests when he or she determines them to be needed.

Training Satisfaction: Questions 9 & 10

Question 9 (mean = 9.0) and Question 10 (mean = 8.6) indicate that the officers were very satisfied with their training and were confident of their ability to collect a hair sample after some practice. These results were gratifying to the researchers who endeavored to establish a comprehensive and professional training program which provided adequate opportunities for

feedback, as well as questions and answers from the officers.

Interpretation of Test Results: Questions 11 & 12

Question 11 (mean = 8.8) and Question 12 (mean = 8.0) indicate that the officers felt that the hair testing results were easy to understand and these results were easily comparable to the standard results that they were accustomed to receiving from urine testing labs

Confidence in Results: Question 13

The final quantitative question (Question 13, mean = 9.0) is important in that it specifically assesses the officer's confidence in the use of the hair testing results in court. As the responses indicate, the officers express overwhelming confidence in hair testing and expect their courts to accept hair testing evidence.

Figure 2. A Summary of Quantitative Questions

1. On a scale of 1-10, with 10 being the most satisfied, how would you rate your overall satisfaction with hair testing?
range = 5 - 10 mean = 8.4
2. On a scale of 1-10, with 10 being the most satisfied, how would you rate hair testing in comparison to urine analysis?
range = 3 - 10 mean = 7.8
3. On a scale of 1-10, with 10 being the most highly recommended, would you recommend that DOC adopt hair testing as the sole means of monitoring offenders?
range = 1 - 10 mean = 5.3
4. On a scale of 1-10, with 10 being the most highly recommended, would you recommend that DOC adopt hair testing as a supplemental means of monitoring offenders?
range = 1 - 10 mean = 8.7
5. On a scale of 1-10, with 10 being the most highly recommended, would you recommend that DOC hair test all new probationers immediately following sentencing?
range = 1 - 10 mean = 6.6
6. On a scale of 1-10, with 10 being the most highly recommended, would you recommend that DOC hair test clients under supervision on a semi-annual basis?
range = 1 - 10 mean = 7.5
7. On a scale of 1-10, with 10 being the most highly recommended, would you recommend that DOC adopt a policy that allows the supervising officer to hair test at his or her discretion?
range = 1 - 10 mean = 8.9
8. On a scale of 1-10, with 10 being the most highly recommended semi-annual testing and 1 being most highly recommend a policy based on officer discretion, would you recommend that DOC adopt a policy which requires semi-annual testing rather than a policy based on officer discretion.
range = 1 - 10 mean = 4.2
9. How would you rate the hair collection training on a scale of 1-10?
range = 5 - 10 mean = 9.0
10. How would you rate your confidence in collecting a hair sample on a scale of 1-10 after collecting a couple of samples?

11. How would you rate the "understandability" of the hair testing results on a scale of 1-10, with 10 being the most understandable?
range = 5 - 10 mean = 8.8
 12. Were the hair testing results comparable to the urine results that you are familiar with?
range = 2 - 10 mean = 8.0
 13. How confident do you feel if you were to use the results in court?
range = 5 - 10 mean = 9.0
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Qualitative Responses in the Survey

We asked 16 qualitative questions that could be grouped into the following categories: questions about the training and practice of collecting hair samples (6 questions); use of testing results in revocation proceedings (4 questions); two questions were asked about clients who voluntarily confessed to drug use upon learning they were subject to hair testing; and, three solicitations for general comments, problems, or anecdotes were made.

Collection Practices

There were few responses concerning training and sample collection practices. Very few respondents reported problems and those that did referred to returned samples because the quantity of hair submitted was not sufficient for testing—commonly referred to as a QNS. This problem was most likely to occur during the first few samples collected, a consequence of collector inexperience. A recurrent theme was anxiety concerning the possibility of collecting hair from other sites on the body other than the head. However, no one noted that they were driven to collect such a sample

Use of Results in Revocation Hearings

Twenty-four of the officers (42%) reported that they had used or had pending revocation actions based on the hair analysis results. In every case the results were accepted by the presiding judge as a consideration for revocation. In the majority of cases the results were used to revoke probation. One officer reported "they [the test results] have not been challenged ... and all who tested positive were revoked." Another officer reports "I have used the results in court and all clients were found guilty of show cause and given time to serve."

Voluntary Confessions

Half of the respondents (29) reported instances of clients voluntarily confessing to drug use when confronted with the demand to submit a hair sample for testing. The modal response was "1 or 2" confessions. One officer reported receiving five separate confessions during the course of a single substance abuse counseling session!

The Purpose of Drug Testing in a Corrections Setting

The results of this survey and numerous conversations with participating officers have led the researchers to think about the goals and purposes of drug testing. Drug testing, regardless of technique, can be used as part of a therapeutic regime or as a tool to achieve criminal justice and punishment goals. As a part of a therapeutic program, drug testing can be used to monitor client progress in a treatment program and as a means for positive feedback should the client continue to abstain from drug use. It can also be used as justification for negative consequences should the client abuse drugs during the course of treatment. As a tool for the realization of criminal justice goals, drug testing should act as a deterrent to drug taking, thus curbing criminal behavior often linked with drug taking. It also serves as a means for monitoring the client's compliance with court or Parole Board conditions of release and as a means of collecting evidence for revocation of supervision should the client fail to abstain from drugs.

Regardless of philosophy or emphasis, practitioners would agree that drug testing should have a deterrent effect on drug taking behavior. In terms of this goal, the drug testing technique itself seems to make a difference. Our research was conceived because many officers felt that urine testing failed to deter. In their own words, "it (urine testing) was a joke". At the moment, there is little hard data to support the deterrent effect of urine testing. See for example some of the comments made by reviewers to SAMHSA's recent request for input on establishing standards for determining the validity of urine specimens collected under the Mandatory Guidelines for Federal Workplace Drug Testing Programs (SAMHSA, 2004). On the other hand, our survey provided some anecdotal data, in the form of numerous confessions by clients when they discovered that they were going to have a hair sample collected rather than a urine sample, to support a conclusion that hair testing deters drug use by probationers and parolees. It is the hope of the researchers that this important topic will be explored in the future.

To return to the differences between the treatment goals and punishment goals, it has been our experience that there is some confusion on the part of practitioners concerning the purpose of drug testing. Should drug testing be used as a means of achieving criminal justice goals or as a part of a therapeutic treatment regime? Are these goals antithetical or can they be concurrently achieved? Perhaps more importantly, what do practitioners consider to be the purpose of drug testing?

We suggest that future research identify the job duties, responsibilities and titles of the respondents and ask respondents to identify what they consider to be the purposes of drug testing. Many field officers are employed with drug courts and day monitoring programs. Others actively supervise probationers and parolees. The nature of these jobs would lead to a reasonable conclusion that field officers may be more likely to emphasize deterrence and punishment; while drug courts and treatment programs would be more likely to pursue rehabilitation goals. Again, future research could address this dilemma in order that practices and policy be tailored to specific purpose.

The Process of Implementing New Technologies

Figure 3 illustrates the process of implementing new technology in the criminal justice workplace. It is safe to say that hair analysis has progressed to the Field Testing stage, but no further at the moment. The testing of technology in a field setting, is an important part of

establishing the reliability, validity and practical application of laboratory-developed techniques. Field testing is integral to the creation of a workable product that can withstand the rigors of a practical setting. The current research provides some insight into officer opinions on the use of hair analysis and is an important component in the fielding testing process.

Theory and model development

Laboratory Testing

Field Testing

Policy Creation

Legal Review

Full-scale Implementation

An essential criterion of any drug testing technology is its admissibility in court. Currently, urine testing results have been accepted with little reservation by state and Federal courts. While hair testing is a recent technology, it has also been accepted by a number of state and Federal courts. The researchers are not aware of any court which has either refused admission of hair testing results or ruled against the use of hair testing as admissible evidence. The issue of hair analysis has been addressed in the Virginia courts and, at this time, Virginia courts are admitting the results of hair testing in the revocation process.

Some Comments on the Future of Hair Testing

Our survey shows that the respondents are well satisfied with the use of hair testing with an average response of 8.4 (on a scale of one to ten) when asked to rate their overall satisfaction with hair testing. Many also added their own positive and enthusiastic comments to the survey indicating this. The majority of respondents preferred the use of hair testing to urine testing and expressed overwhelming confidence with the use of hair testing results in court. In terms of implementation, it is apparent that officers would prefer a policy that allows the supervising officer to hair test at his or her discretion. They also expressed a preference for adopting hair testing as a supplemental rather than as a sole means of monitoring offenders. It is our conclusion that hair testing was well received by Virginia officers and they would like to add it to their toolbox of techniques for monitoring clients.

Notwithstanding this positive response from field officers, there is a hiatus in the use of hair testing for corrections populations. No federal or state agency in the field of corrections relies on a drug testing regime that primarily employs hair testing at this time. The Virginia Department of Corrections has chosen not to continue the practice of hair analysis for probationers and parolees. This decision was based primarily on financial considerations and was implemented when the federal flow-through funding for the instant research project ran out in 2002.

In what was perhaps the only other state-wide use of hair testing, the Pennsylvania Department of Corrections has also curtailed the use of hair analysis. In the Pennsylvania program, hair

analysis was used as an assessment tool to evaluate the effectiveness of their Drug Interdiction Program in select state prisons. The Program was designed "to rid Pennsylvania's prisons of

drugs and to secure inmate and staff safety and [the program] showed dramatic declines in prison inmate drug use...prisons were virtually 99 percent drug-free" (Feucht, 1999:14).

The primary method of drug detection for corrections populations continues to be based on the analysis urine. This may be because of budget concerns over the cost of individual hair test kits (costs for a single hair test can range from \$40 to over \$100 depending on negotiated contract), or the convenience in maintaining the status quo and a reluctance on the part of administrators to invest in the uncertainty of new technology. In any event, the field of corrections has not embraced a widespread use of hair analysis at this time.

Currently, the overwhelming use of hair testing in the field of criminal justice is as a preemployment screening tool for a number of police departments and as part of a post-employment monitoring program. For example, the New York Police Department currently tests all applicants for employment with the department and the Boston Police Department uses hair analysis as a testing device for randomly selected officers as a part of a post-employment monitoring program.

The largest consumer of hair analysis continues to be the private sector. Over 2,000 private employers purchase hair analysis from the Psychemedics Corporation, according to their website. Those businesses, much the same as the participating police departments, use hair testing as a preemployment screening device and as a part of a post-employment drug monitoring program.

We believe that these usage patterns will continue in the immediate future, primarily as a consequence of tightening state corrections budgets and bureaucratic maintenance of the status quo. This is an unfortunate turn of events, because it is our opinion that hair testing provides the officer with a reliable and convenient means of monitoring client drug usage that has the potential to deter drug use in the corrections population. Officers like hair testing, the Virginia courts accept it as evidence in revocation hearings and clients seem to respect its accuracy.

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