The Use of Fingernail Drug Screening in Multiple Convicted OWI Offenders in Kenosha County, WI

Douglas E. Lewis¹, Guida Brown², Irene Shu¹, and Joseph Jones¹
¹United States Drug Testing Laboratories, Des Plaines, IL, United States ²Hope Council, Kenosha, WI, United States

ABSTRACT

Aim: Kenosha County has been piloting the use of direct alcohol biomarkers, dried blood spot phosphatidylethanol (PEth) and fingernail ethyl glucuronide (EtG), as part of its evaluation process for multiple convicted operating while intoxicated (OWI) offenders. In addition to the alcohol biomarkers, selected subject on initial evaluation also had a five drug panel fingernail drug analysis performed to identify those individuals that had a history of binge use of one or more of these common classes of drugs of abuse.

Methods: Beginning in 2011 as part of a Kenosha Country pilot program, all three or more conviction offenders received as part of their initial evaluation a DBS PEth and a fingernail EtG. Depending on the initial evaluation, selected subjects were also tested for a five-drug panel in fingernail. Specimens were collected by the subjects themselves under the direct observation of the evaluator. Laboratory testing utilized the proposed SAMSHA hair and nails screening and confirmation cutoffs as proposed in the Federal Register Vol. 69, No. 71 (Tuesday, April 13, 2014/Notices.)

Results: 255 subjects met the criteria of three or more OWI convictions, and all were required to undergo PEth and/or EtG testing. 235 of the subjects submitted DBS PEth tests, and 206 submitted fingernail EtG tests. Only 114 of the subjects were required to submit a 5-drug panel on fingernails upon assessment. Number of drug-positive samples was 2, 14, 16, 15, and 0 for amphetamines, opiates, cocaine, cannabinoid, and phenycyclidine, respectively.

Conclusions: This survey gave us an in-depth analysis of the potential drugs that this particular population uses. We had no empirical evidence to hypothesize as to the extent of the illicit and prescription drug use that the subjects might be using at the time of their arrival at evaluation. Solely relying on self-report of drug use history may be inaccurate. On the other hand, we believe that this study also under-reports the actual drug use since it was limited to only a 5-drug panel. A more extended drug-testing panel including prescription opioids may have under-recorded more use and would be advised for future studies.

METHODS

- Kenosha County, WI (Hope Council) enrolled multiple OWI conviction offenders (3 or 3 times) in Drivers Safety Plan (DSP), which includes biomarker testing of substance use.
- Total of 255 subjects were included in the pilot program since 2011.
- Subjects collected the specimens themselves under direct observation for the following testing (see right for the number of tests submitted):
  - Alcohol Biomarkers:
    - DBS PEth (≥2000ng/mL)
    - Nail EtG (≥2200ng/mL)
  - 5-Drug (SAMSHA cutoff):
    - Amphetamines
    - Opiates
    - Cocaine
    - Cannabinoid (THC)
    - Phencyclidine (PCP)

RESULTS

- Alcohol Biomarker Tests
  - Positive: 115 (45.5%)
  - Negative: 120 (54.5%)
- 5-Drugs of Abuse Tests
  - Positivity for one or more drug classes:
    - AMP: 740 (35.1%)
    - OPI: 116 (56.6%)
    - COD: 119 (58.9%)
    - THC: 119 (58.9%)
  - AMP+OPI+COD+THC:
    - AMP: 12 (6.1%)
    - OPI: 16 (7.7%)
    - COD: 103 (49.9%)
    - THC: 103 (49.9%)

DISCUSSIONS AND CONCLUSION

- Long-term alcohol biomarkers may imply the multiple convicted OWI offenders' history of alcohol-binging behavior.
- 69.1% of the tested subjects were positive for alcohol biomarker(s), suggesting that they continued to binge after their last OWI arrest by the time of DSP evaluation.
- Only 35.1% of subjects tested for 5-drugs of abuse in fingernail were positive for cocaine, THC, and opiates were the most prominent drug classes.
- Prevalence of alcohol-binging was higher in the binge-drinker population.
- More extensive drug test panel including prescription opioids is warranted in the pilot program.