



More than a Test

Presented by Mike Murano, President



BEECHTREE

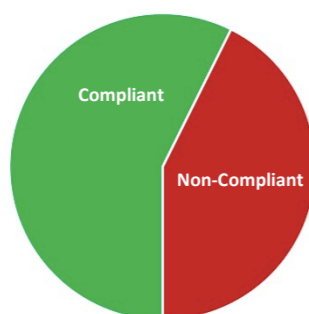
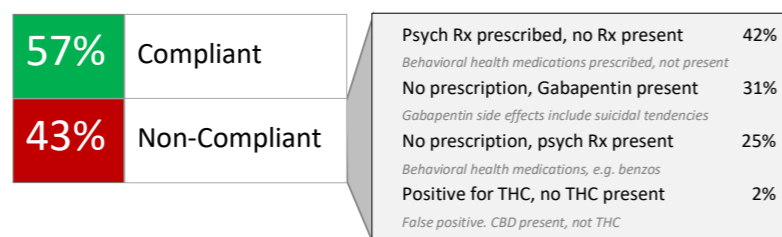
DIAGNOSTICS

2019 Q1 – BEECHTREE DIAGNOSTICS

CLIENT COMPLIANCE AND POC ACCURACY STUDY

Court Ordered Drug Testing: Toxicology Study

Beechtree Diagnostics provides Confirmation testing services for court ordered drug screens. The purpose of this study was to determine client compliance and accuracy of POC initial drug screens **to mitigate wrongful prosecutions.**



COMPLIANT HIGHLIGHTS

50% of test results demonstrated **FALSE POSITIVE** initial POC screen outcomes

NON-COMPLIANT HIGHLIGHTS

8% of test results demonstrated **FALSE NEGATIVE** initial POC screen outcomes

- ✓ 42% Psych Rx prescribed, no Rx present
- ✓ 31% No prescribed Rx, Gabapentin present
- ✓ 25% No prescribed Rx, Psych Rx present
- ✓ 2% POC positive for THC, Confirmation negative for THC / positive for CBD

OUTCOME DEFINITIONS

Compliant	Expected outcome, e.g. only prescribed medications tested positive or no controlled substance present.
Non-Compliant	Unexpected outcome, e.g. prescription not present, and/or not prescribed substances (illicit or medications) were present.
Validity	Failed Validity test (e.g. tampered or adulterated test, or kidney function issue, often caused by dehydration)

STUDY POPULATION

- ✓ Random sample
- ✓ 129 Adult clients
- ✓ Court ordered drug screens
- ✓ **Comparison of point of care (POC) initial screens to LC/MS Confirmation urine toxicology test results**

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CLIENT COMPLIANCE AND POC ACCURACY STUDY

Non-Compliant Patient Summary

The following describes the outcome details of non-compliant patients.

Psych Rx Prescribed, No Rx Present

- ✓ Client not taking prescribed behavioral health medications

No Prescribed Rx, Gabapentin Present

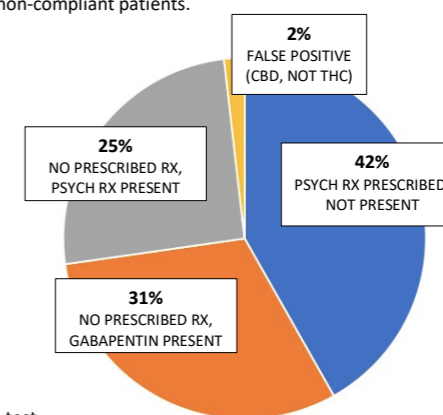
- ✓ Positive for non-prescribed medication
- ✓ Side effects include suicidal tendencies

No Prescribed Rx, Psych Rx Present

- ✓ Positive for non-prescribed medication(s)
- ✓ Some psych medications combined with an opioid can be fatal

False Positive for THC

- ✓ THC false positive Point of Care (POC) initial screen. LC/MS high complexity confirmation test demonstrated negative for THC, positive for CBD



Validity

POC initial screen tests only check for classes of drug, not individual compounds. Beechtree LC/MS Confirmation tests separate all compounds by their atomic weight and confirm validity.

- ✓ If Creatinine OR Specific Gravity are out of range, it indicates there may be an issue with the client's diet, hydration, and/or kidney function.
- ✓ If creatinine AND specific gravity fall BELOW normal reference ranges, **a foreign substance was used to dilute the sample.**
- ✓ If Oxidant is positive **the specimen has been adulterated** by adding an oxidizing agent (e.g. hydrogen peroxide, bleach, or nitrates).

CBD vs THC: Beechtree verifies THC vs CBD using an LC/MS Confirmatory test which separates and validates each compound in the urine based on its atomic weight.

Meth vs OTC Cold Rx: Beechtree reflexively runs each sample that tests positive for Methamphetamines a second time using a D&L Isomer test to differentiate over the counter medications (e.g. cold medicine) from illicit meth. Both patient tests confirmed D-Methamphetamine (illicit meth).

Seniors POSITIVE for illicit drugs: Elderly patients may test positive for illicit drugs, e.g. Fentanyl, when they purchase medications online from "wholesale" or "Canadian" companies that sell fake medications, manufactured to look like legitimate medications.

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DIAGNOSTICS

A CLEAR SHOT AT BEATING YOUR DRUG TEST



The new science of specimen validity testing that takes the mask of masking agents.



Here's how they do it

MASKING USE INSTRUCTIONS:

1. For 48 to 72 hours before your drug test, abstain from drugs.
2. At most five hours and at least one hour before the test, drink Rescue Cleanse. Shake the bottle well before drinking!
3. Wait 15 to 20 minutes.
4. Refill the bottle of Rescue Cleanse with water and drink it within the next 15 minutes.
5. Urinate at least three times within the next hour.
6. You are now in the "clear zone." You are now ready to be tested!

CLEAR ZONE



SOURCE: "What Are the Best Detox Drinks for Drug Test? Do They Really Work?", IRDN.org, <https://www.idm.org/best-detox-drinks-weed/> Accessed 1 Nov. 2019.





- U-47700 Pink
- Fentanyl (Counterfeit Pain Meds)
- D & L Isomer
- Synthetic Urine and Masking Agents
- Utah Based Company



- 130 Analytes and Metabolites
- Improved Validity/Detect Fake Urine or Masking Agents
- Improved Accuracy and Transparency
- Over 30 Prescription Medications



Cost Savings for SUD and Mental Health Treatment

1. Better transparency for the physician so treatment can be more effectively administered in the office.
2. Better results and improved health for the patient.
3. Cost savings for Mental Health.
 - a. Don't pay for prescriptions that are not being used.
 - b. Reduced need for hospital detox and evaluation.
 - c. Increased accountability creates better results.



Cost Savings for Court Services

1. Evidence-based decisions for persons going back to jail or prison.
2. Judges order drug tests daily or nearly daily using POC cups.
3. Share results of patients seeing a treatment provider.
4. Probation officers are able to have a more meaningful conversation about drug use.
5. Don't let a slip become a fail.
6. Consequences that should not be taken lightly, including:
 - Losing their job
 - Additional financial hardship for the individual and their family
 - Costs of incarceration
 - Starting over from the bottom.



How can the Legislature help?

- Continue to provide funding resources to those successfully treating these patients with SUDs.
- Increase funding for Drug Court and other court services to include LC/MS testing.
- Encourage and/or allow more accurate testing methods with less frequency. It's less disruptive for the patient and provides real transparency for the judges and probation and parole.
- Encourage a financially more holistic approach to the process. When a patient doesn't get sent to a hospital or back to jail, those savings are not always represented when looking at individual organizational budgets. The clinic didn't get the value of the savings, but the savings were realized by another organization and the State of Utah saves money.
- It's hard to measure the monetary impact of a patient who is unable to get or keep a job because of the demands of their treatment or court-ordered testing. Let's look for ways to minimize that impact while still providing accountability.

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As a physician I have greatly appreciated the services provided by Beechtree Diagnostics. The abundant variables in toxicology testing can make it extremely challenging both for the organizations doing the lab work as well as those making clinical and legal decisions based off of the results. The numerous data points provided in the reports from Beechtree allow us to make better clinical decisions because they give us more information. For example, we have many patients with mental illness that take medications which increase thirst. This has sometimes been quite problematic for those who also suffer from substance use disorders because the increase in water intake can make it appear that the patients are attempting to dilute and falsify their results when they provide urine drug screens. However, having the additional data on the reports from Beechtree allows us to better understand the situation. For example, the reported presence of anticipated human proteins in the urine makes the likelihood of synthetic urine low. The reported presence of the prescribed drugs that the patient should be on makes it more likely that the sample actually represents the patient's urine, was not substituted, was not tampered with, and therefore still provides valuable information that enables us to make decisions that can help the patient. If Beechtree only used one method to ensure the validity of the sample or did not test for the additional substances simultaneously, then the sample may have simply been interpreted as an attempt by the patient to falsify their results and could easily lead to detrimental consequences including incarceration, loss of child custody, etc.

No toxicology test is perfect and the whole clinical picture needs to be taken into account when helping these patients; but, the work done by Beechtree gives us abundant amounts of information that can help us better understand what is actually happening and what needs to be done next.

Lastly, I have also appreciated the flexibility and cooperation on the part of Beechtree to help us coordinate and modify the process of collecting and processing random urine drug screens for our patients. We all "play different when we keep score" and the extra layer of accountability, especially early in treatment, that is provided by regular random urine drug screens can provide a powerful boost in incentive that can help patients jump start needed changes in behavior (which can thereafter be reinforced by therapy, employment, etc.). In some scenarios this extra accountability can almost be considered therapeutic given the results it has on patient behavior. Unfortunately, this type of testing can be difficult to provide to patients due to cost, scheduling limitation, etc. Thus far Beechtree has been responsive and open to making adjustments as we go along so that we can maximize accessibility of these services to our patients and I greatly appreciate their help.