



white paper

URINE VS. ORAL FLUID IN WORKPLACE DRUG TESTING

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Recently, there has been a rise in interest and use of oral fluid-based drug screens across employers. All drug test types are accompanied by a number of variables and factors employers should consider when deciding on a test type. In this white paper, **BIG** will explore the differences between urine and oral fluid drug testing. Topics covered include:

- Environments in which each test can be utilized
- Detection windows for each test (e.g., sensitivity for detecting different drugs)
- Success using the test as a Point of Care (POC) vs. laboratory testing
- Benefits and drawbacks of using oral fluid drug testing

TESTING ENVIRONMENTS: DOT VS. NON-DOT

Urine has been the most popular and well established sample type for drug testing in the workplace. The Federal Register published the first Mandatory Federal Guidelines for urine testing in 1988, with several subsequent revisions. Currently, DOT drug testing programs only utilize urine samples to conduct screenings.¹

The Mandatory Federal Guidelines for oral fluid were recently published on October 25, 2019 (84 FR 57554) with an effective date of January 1, 2020. Despite the guidelines having been published more than two years ago, there are currently no laboratories certified to conduct drug and specimen validity tests on oral fluid specimens.² As such, the utilization of oral fluid testing for DOT purposes remains prohibited. However, some employers are using oral fluid-based testing for non-DOT drug screens in the workplace. As this practice continues to increase, employers are encouraged to evaluate the pros and cons associated with oral fluid-based testing and determine whether it is the most appropriate option based on all other factors.

WINDOW OF DETECTION

The most crucial factor to evaluate when considering urine or oral fluid-based testing is the detection window. In general, this window is longest in hair, followed by urine, sweat, oral fluid and blood. In urine, most drugs are detected anytime from a few hours to five days post-consumption usually; however, there are some exceptions for certain drugs and chronic users. For example, urine drug tests may detect marijuana anytime between one week and several weeks. In comparison, oral fluid-based testing detects drugs within minutes of consumption and up to as long as 48 hours, with some exceptions.³ The sensitivity of the oral fluid test depends on several factors, including:

¹ Mandatory Guidelines for Federal Workplace Drug Testing Programs: <https://www.federalregister.gov/d/E8-26726/p-7>

² Current List of HHS-Certified Laboratories and Instrumented Initial Testing Facilities Which Meet Minimum Standards To Engage in Urine and Oral Fluid Drug Testing for Federal Agencies: <https://www.federalregister.gov/d/2021-23700/p-10>

³ Detection Times of Drugs of Abuse in Blood, Urine, and Oral Fluid; Alain G. Verstraete: [158036_Detection_Times_of_Drugs_of_Abuse_in_Blood_Urine_and_oral_fluid.pdf \(drugsforum.com\)](https://www.drugsforum.com/158036-Detection-Times-of-Drugs-of-Abuse-in-Blood-Urine-and-oral-fluid.pdf)

- The type of test used
- Levels of cut off based on the type of test
- Availability of the drug in oral fluid (based on its affinity to protein binding and pH of oral fluid)
- Oral hygiene

Studies have revealed high levels of accuracy when testing oral fluid for amphetamines, average accuracy levels for cocaine and opiates, and below average results for marijuana and benzodiazepines⁴. The variability of accuracy levels across substances depends on the oral collection kit being used, as each brand’s sensitivity and accuracy levels vary. Conversely, urine is not subject to any variability based on these factors.

POINT OF CARE (POC) VS LABORATORY-BASED TESTING

Both urine and oral fluid are available as Point of Care (POC) tests. However, oral fluid carries a higher variability in

results, depending on the technology and the type of collection kit used.

When comparing laboratory-based and POC testing using oral fluid, laboratory-based tests have shown to be a viable matrix and comparable to urine compared to POC oral fluid tests.⁴

PROS AND CONS OF ORAL FLUID TESTING

Some of the pros of using oral fluid are:

1. Easy, minimally invasive and rapid collection
2. All collections are observed, virtually eliminating the chances of adulteration and/or substitution
3. Detection of recent drug use, making the test ideal for post-accident, reasonable suspicion or for-cause testing
4. Availability of various online apps and efficiency programs make remote collections possible

Some cons associated with of oral fluid testing are:

1. Narrow window of detection compared to urine (less than ideal for pre-employment screening purposes)
2. Variability in detection rates of drugs based on the test type, drug kinetics and parameters set by the laboratory

CONCLUSION

Based on an employer’s drug testing needs, requirements and objectives in the workplace, oral fluid testing may be a good choice. It can be used as a POC or a laboratory-based test, the latter being more sensitive and accurate. It also serves as an optimal choice in post-accident and for-cause testing scenarios given the non-invasive and rapid collection method and its ability to detect recent drug use.

Employers that fall under the auspices of DOT should refer to 49 CFR Part 40 for the most current regulatory guidance regarding drug testing requirements. ■

	Oral Fluid Tests	Urine Tests
Lab Certified to Perform DOT tests	No	Yes
Established Process	Yes for non DOT, no for DOT	Yes
Use in Post-Accident	Best	Average
Accuracy affected by variables	Yes	No
Observed Collection Ease	Yes	No
Window of detection	Narrow (few hours to 2 days on average)	Longer (hours to 5 days on average)

Oral Fluid Tests and Urine Tests Comparison

⁴ Detection of Drugs and their metabolites in Oral fluid. Robert M.White, Christine M.Moore; pg 54, 57, 117.