A woman in a dark blue t-shirt is shown from the chest up, holding a white saliva collection device in her mouth. She is also holding a clear plastic test tube with a blue band and a white cap. The background is a plain, light-colored wall.

# Saliva-Based Substance Abuse Screening for the COVID-19 Era

**Creating A Substance-Free  
Workplace Culture**

---

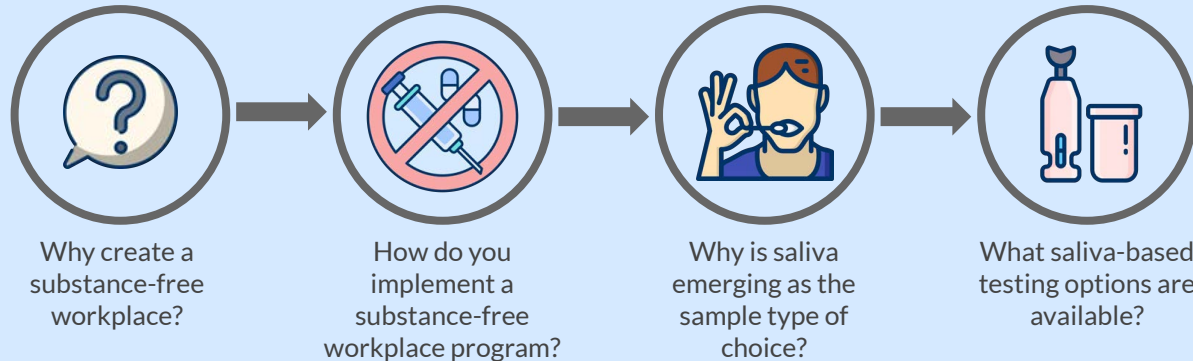
PRESCOUTER

*April 2021*



**Employees struggling with isolation and stress from the pandemic have increasingly turned to substance abuse.** Unchecked and unmanaged, substance abuse is creating workplace performance, behavioral, and morale issues. With COVID-19 under better control, employers are resuming Substance-Free Workplace Programs, but using saliva - the sample type of choice for the COVID-19 era.

Instead of sending employees to urine collection sites, employers are conducting sample collection onsite using saliva collection kits. Samples overnighted to a lab can provide highly accurate and legally defensible results. Rapid saliva tests, though less accurate, are the best option for rare instances when results are needed immediately. **For less than \$5000/year, employers can keep a 100-person facility safe from substances of abuse.**



# COVID-19 has accelerated America's drug problem.

Throughout its history, America has had a substance abuse problem. This has ranged from opioid use to reduce pain in farmlands during the 1800s, to marijuana use in the 1960s from social turmoil brought about by the Vietnam War.

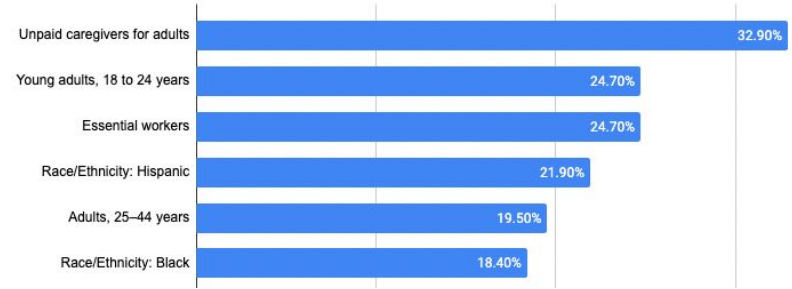
Evidence shows COVID-19 has been worsening America's drug problem. In a CDC survey of US adults, 13% of respondents said in late June 2020 that they had started or increased substance use to cope with pandemic-related stress or emotions.<sup>1</sup>

Recent statistics suggest **70% of Americans who use illegal drugs are employed, and that a significant percentage of this drug usage either occurs at work or employees are high when they arrive at their workplace.**<sup>2</sup>

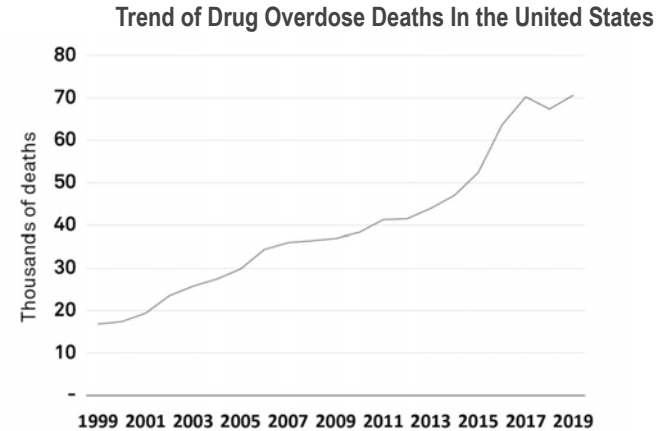
[1] [CDC: Mental Health, Substance Use, and Suicidal Ideation, June 24–30, 2020](#)

[2] [OHS Online: Drugs and Workplace Safety, June 2019](#)

## Groups that were most likely to increase substance use to cope with COVID-19



Source: [CDC: Mental Health, Substance Use, and Suicidal Ideation, June 24–30, 2020](#)



Source: [National Center for Health Statistics](#)

# Many workplace employee issues due to substance abuse are likely not attributed to it.

The tangible outcomes of substance abuse, such as injuries and claims against health insurance or worker's compensation, are understood and rare in occurrence.

Nevertheless, employers that do not monitor substance abuse are likely experiencing many intangible job performance and workplace behavior issues - issues that compromise workplace safety.

The loss to companies in the United States due to alcohol and drug-related abuse by employees totals \$100 billion a year, according to the National Clearinghouse for Alcohol and Drug Information (NCADI).

## Job Performance Issues that may be due to Substance Abuse

- Inconsistent work quality
- Poor concentration and lack of focus
- Erratic work patterns: Unexplained disappearances from the job site, extended lunch periods, or early departures
- Increased absenteeism
- Carelessness, mistakes, or errors in judgment
- Needless risk taking

## Workplace Behavior Issues that may be due to Substance Abuse

- Theft
- Avoidance of friends and colleagues
- Blaming coworkers/supervisors for own problems and shortcomings
- Complaints about problems at home
- Deterioration in personal appearance or personal hygiene
- Lower morale of coworkers
- Higher turnover

## Underlying causes

- After effects of substance use (withdrawal) affecting job performance
- Preoccupation with obtaining and using substances while at work, interfering with attention and concentration
- Illegal activities at work including selling illegal drugs to other employees
- Psychological or stress-related effects due to drug use by a family member, friend, or coworker that affects another person's job performance

# Prevention Works

A substance abuse testing program curbs drug abuse through three channels:

- The fear of getting caught
- The probability of getting punished
- The severity of the penalty

The structure of the substance abuse testing program largely determines its effectiveness. For example, in some programs, drug tests are mandatory only after an accident, limiting their deterrence value. Far more effective are programs requiring all workers to submit to random drug tests.

The primary cost of a zero-tolerance policy is the cost of replacing terminated workers. As such, a strict anti-drug policy may not really be worth the cost. The US military's approach in the early 1980s, which coupled random testing with a more lenient "two strikes and you're out" policy, showed a sizeable deterrence effect.

[1] [Under the Influence? Drugs and the American Work Force](#), Normand J. Lempert RO, O'Brien CP figure 7.3, 7.5

[Employee Drug Testing is Effective | NBER](#)

## Tangible Benefits

A large research study performed with the US Postal Service<sup>1</sup> compared staff who tested positive for substances versus those who tested negative. The study observed that those testing negative, compared to those testing positive, showed:



25% decrease in absenteeism



25% decrease in mistakes in work



21% decrease in problems with supervisors



71% decrease in on-the-job injuries

## Case Examples

**Southern Pacific Lines**



Before Drug Testing

2,234  
incidents per year

After Drug Testing

322  
incidents per year

Study: Taggart R, (1989) Results of the Drug Testing Program at Southern Pacific Railroad. In S. W. Gust and J. M. Walsh (Ed.) Drugs in the Workplace: Research and Evaluation Data. NIDA Research Monograph, Number 91 pp. 97-108

**Group of construction companies in 2000 study**



Before Drug Testing

8.92  
incidents per 200,000  
work-hours

After Drug Testing

4.36  
incidents per 200,000  
work-hours

Study: Gerber, J. (2000) An evaluation of drug testing in the workplace: A study of the construction industry. Cornell University School of Industrial and Labor Relations



For many companies, the business case for creating a substance-free work culture is clear. To implement a Substance-Free Workplace Program, companies need to decide on and communicate their substance testing policies - before acting on those policies.

1

### Build the Business Case for Creating a Substance-Free Work Culture



Estimate the expense of drug testing



Estimate the Return on Investment (ROI)

2

### Implement a Substance-Free Workplace Program



Prepare policies; identify suppliers



Communicate program; provide training



Conduct substance testing at key moments



## The cost of creating a substance-free work environment is negligible, when compared to the cost of the staff themselves.

Taking the example of a 100-person work site with:

- Annual staff turnover of 20%
- ~5% of staff tested over the year following an accident or because of reasonable suspicion
- Surveillance testing 15% of staff every quarter

The cost of testing can be as little as \$3400, assuming \$40 per test.

Over 365 days in the year, this works out to be less than \$0.10 per employee, per day.

**At \$0.10 per day per employee, the cost of creating a drug-free work environment is negligible beyond the cost of a \$15/hour worker.**

**Example: 100-person worksite, accountable for \$1M in production**

Reason for Testing		Num
	New hires 20% annual turnover x 100 employees	20
	Post-accident / reasonable suspicion 10% of employees x 100 employees	10
	Surveillance 15% of employees x 100 employees x 4 times per year	60
<b>Total tests per year</b>		<b>90</b>
<b>Cost of Lab Testing</b>	<i>\$40/test (avg) x 90 tests</i>	<b>\$3600</b>
<i>Rapid Tests for instant, ad-hoc testing</i>		<b>\$710</b>
<i>Medical Officer Review / Other costs</i>		<b>\$200</b>
<b>Total</b>		<b>\$4,510</b>

# A small reduction in absence rates or work mistakes makes the Return On Investment for a substance abuse-free workplace program compelling.

## How much does a single employee who is a little more absent cost?

Based purely on the overtime cost to cover the absent employee:

- Average absenteeism rate for US companies = 3.1%<sup>1</sup>
- Work hours per year = 225 working days x 8 hours/day = 1800 hours

Workers who have an absenteeism rate of:	Level of absenteeism in excess of 3.1% average:	Absent hours in excess of average:	Hourly overtime cost:	Overtime cost:
(a)	(a) - 3.1% = (b)	(b) x 1800 = (c)	(d)	(d) x (c)
5%	1.9%	34.2	\$30	\$1,026
7%	3.9%	70.2	\$30	\$2,106
9%	5.9%	106.2	\$30	\$3,186

These costs do not include administrative costs, as well as safety/quality issues resulting from overtime fatigue or understaffing.

[1] [Circadian](#)

## How much does a single mistake in a manufacturing line cost?

Spoiled goods, goods that do not meet specifications, or other wasted manufacturing output due to mistakes can have a cost that is \$1000, \$100k, \$1M, or \$10M. However, such mistakes only represent part of the story.

The real problem is that such mistakes directly reduce the profit margin of an individual facility. In manufacturing, where margins can be 10% or less, a single mistake can wipe out the entire profit margin for a facility for the year - if not substantially reduce it.

## How much does a single injury cost?

The [National Safety Council](#) estimates that a single medically consulted injury costs **\$42,000**. This includes wage and productivity losses, medical expenses, and employers' uninsured costs, as well as administrative costs such as the time to investigate and write up.





# Preparing a Substance-Free Workplace Program

1

## Check state laws



Drug testing laws are state dependent. For example, some states require that all elements of a company drug-testing program strictly follow U.S. Department of Transportation guidelines.

As well as consulting with an employment lawyer, the ACLU provides a starting point:

[Summary of state drug testing laws](#)

2

## Prepare a written "drug-free workplace" policy



A "drug-free workplace" policy provides legal protection for organizations. Ensure that all employees have a copy and acknowledge their review and understanding of it through a dated signature of the policy placed in their personnel file.

SAMHSA provides guidance on what a policy should detail:

[SAMHSA Workplace Toolkit](#)

3

## Identify suppliers



Only federal/state certified labs should be used for the analysis of specimens. Also, consider the services of a medical review officer who can, for example, determine if positive results are due to medical prescriptions for marijuana.

Contact us at [testing@prescouter.com](mailto:testing@prescouter.com) to understand your options on this topic.



# Indoctrinating a Substance-Free Workplace Culture

1

## Post signs



Post "We Are a Drug-Free Workplace" or similar signs in the parking gate entrance, the entrance to your building and the lobby, the coffee room, and above the employee time clock. Post similar signs where job applicants can see them. Circulate substance-abuse prevention educational materials.

2

## Provide training



Arrange substance-abuse awareness training for supervisors and managers at least once per year. Such training will help them to identify the indicators of drug use among employees and teach them the most effective methods of isolating and preventing a possible drug-use related workplace problem before it becomes a crisis for your company.

3

## Screen during hiring



In all job advertisements, include a statement such as "employment subject to passing a drug test." Some states require that at least 10 days notice be given to an employee prior to his or her drug test.



# Conduct Testing at Key Moments

*"People Respect What You Inspect Not What You Expect" - Management Proverb*



## Pre-employment

New hires testing positive for drugs should have their employment offer immediately rescinded, irrespective of qualifications or company need.



## Random screening

Randomly drug test (laws permitting) at least 50 percent of your employee base annually. Consider performing random testing monthly.



## Reasonable suspicion

Test an employee for "reasonable suspicion" whenever reasonable cause is justified by virtue of employees' display of any behavioral or physical indicators of drug use, including a dramatic change in work performance.



## Post-accident

"Post-accident" drug test an employee whenever justified by serious injury or damaged/loss of property or life. Most states will deny workers' compensation and unemployment benefits when an accident is caused by an employee whose post-accident drug test is positive.

### Important reminders:

- All specimens that initially test "positive" from onsite test devices should be re-tested by a certified lab.
- All test results should be kept strictly confidential and should only be shared on a "need to know" basis.



**Saliva-based testing is a simpler, more convenient testing approach than urine - and is also better suited to the pandemic environment.**

Saliva testing eliminates the need for employees to go off site and decreases the likelihood of tampered samples. Based on decades of success with saliva-based drug testing in the insurance industry, the federal government is actively reforming its drug testing policies to allow for more widespread saliva testing.

### ***Why saliva over urine?***

**Convenience;  
suitability during  
COVID-19**



**Hard to  
cheat**



**Less lost  
work time**



**Scientifically  
validated**



**Increasingly  
favored by  
government**





# Saliva-based testing is more convenient than urine and better suited for testing through the pandemic.

Traditionally, urine has been the only sample type used for drug testing, since it is less invasive and typically 4 to 5 times less expensive than a blood draw, despite the fact that blood is a superior sample for drug detection. However, advances in diagnostic testing have resulted in the development of saliva-based drug tests.

Crucially, staff do not need to visit a collection site, where they could come into contact with someone who has COVID-19. Samples are collected onsite and either tested using a device (for a rapid test) or overnighted to the lab (for the most accurate testing).

Saliva is an excellent sample for detecting drug use, as it covers the same window of detection as blood, with minimal invasiveness.



## Easy to sample

Sampling of saliva is non-invasive and can be done **without a healthcare professional**.



## Cost effective

After factoring in the cost of travel to collection sites and lost work time, saliva-based testing is often more cost effective than urine-based testing.



## Gender neutral

Saliva is a gender neutral testing solution that prevents awkward bathroom observation situations.



## Location independent

Collection of samples is not subject to close proximity of a collection site or opening hours.

## Shy Bladder Syndrome



Providing a urine specimen is viewed among some groups as a humiliating act and complicated by shy bladder syndrome. Shy bladder occurs in roughly 6% of the American population and can delay sample production from minutes to hours. When urine collection has to be witnessed, the percentage of people affected by shy bladder is higher – adding unwarranted stress and humiliation for employees, many of whom will typically have a negative result.



# Saliva-based testing reduces lost work time.

With saliva-based testing, samples can effectively be collected anytime and anywhere.

In contrast, for accurate, lab-quality testing, urine samples often require employees to visit a collection site.

Sending employees off site not only usually means paying for transportation to the collection site; it also means a greater amount of lost work time taken up in traveling to the collection site.

Once at the collection site, there may be queues. Some collection sites may require advance scheduling.

Onsite sampling can also speed up and improve the efficacy of the hiring process, since new hires can be tested immediately without reporting to a collection site to provide a sample.

## Reduces Employee Downtime



	TRAVEL	DELIVER	RETURN	Can take...
Urine Collection Model	15 - 30 mins	30 - 60 mins	15 - 30 mins	Hours
Saliva Collection Model	none	5 mins	5 mins	Minutes

## Facilitates Faster Hiring Decisions

	Mo	Tu	We	Th	Fr
Urine Collection Model	Offer	Collection site (48 hrs. to report)		Results	
Saliva Collection Model	Offer	Results			



## Saliva testing is next to impossible to cheat.

Sample substitution or adulteration is next to impossible with saliva samples because it is easy to observe the collection of the sample. There is no need for privacy, which is what generally creates opportunities for falsification with urine samples, and there are no reported tools or approaches for falsifying saliva samples.

In contrast to saliva samples, urine tests are incredibly easy to adulterate; a simple search online offers countless ways to do so. A few of the ways in which urine tests can be adulterated are as follows:

- By addition of household chemicals such as table salt, hand soap, vinegar, bleach.
- By addition of adulteration agents sold as commercial products. Examples are: UrinAid (glutaraldehyde), Stealth (peroxide) and Urine Luck.
- Dilution of the urine sample.
- Swapping the sample out with synthetic urine that is readily available and sold online.

### Commercially Available Urine Adulteration Products



Images from: [Urinelock.com](http://Urinelock.com), [testclear.com](http://testclear.com)

Several peer-reviewed scientific papers have confirmed that there are various methods used to adulterate samples (1, 2). These include the addition of bleach, table salt, laundry detergent, toilet bowl cleaner, and also various commercial products that are available to adulterate a test. The products listed above (QuickFix Plus, Urine Luck, and Klear Urine) are a mere fraction of the kits available online for the purpose of falsifying a urine test.

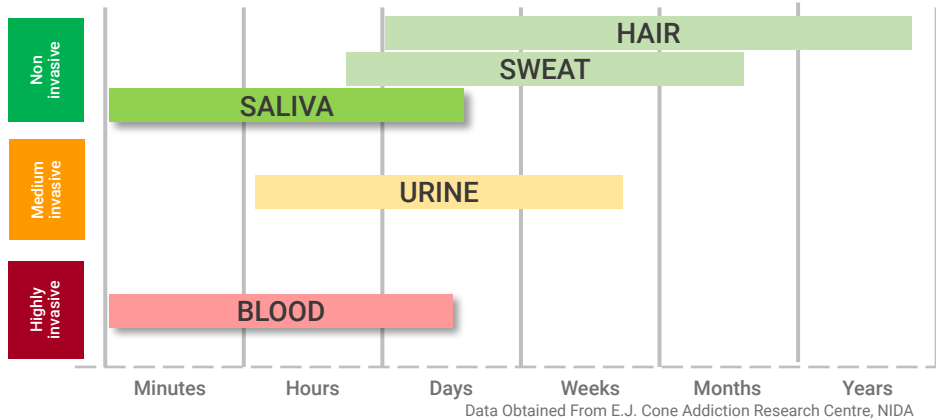
**Currently, there are no adulteration products available for saliva-based tests.**



# Saliva has over 2 decades of scientific evidence attesting to its accuracy.

For over 20 years, life insurance companies have used oral fluid testing to test for drugs of abuse. In addition, several scientific papers have validated that saliva is a reliable alternative to urine (or blood) samples.

## Saliva has the same window of detection as blood



The window of detection tells us how long a lab test can reliably distinguish a positive sample. Saliva is the only non-invasive sample type that closely reflects blood, which is generally considered the most accurate sample type. This means saliva is particularly well suited for reasonable suspicion testing, determining if someone is presently under the influence of drugs. Additionally, saliva can be used to detect both parent drugs and metabolites, which is not possible with urine.

## Saliva has similar sensitivity to urine

SAMSHA 5 Panel	Saliva Positivity Rate	Urine Positivity Rate
Overall Positivity	4.1%	4.4%
Cocaine	0.82%	0.58%
Marijuana (THC)	2.5%	2.3%
Opiates	0.6%	0.35%
Methamphetamine	0.41%	0.59%
PCP	0.02%	0.02%

When comparing urine testing to saliva testing for the SAMSHA 5 panel, or “5 Panel,” data shows that saliva is a reliable replacement for urine samples. Overall positivity numbers reflect that saliva-based assays are suitable for drug screening programs. For some drugs tested, saliva outperforms urine as a sample ([Sample, et al. 2010](#)). In total, 4.59 million oral fluid specimens and 30.4 million urine specimens were included in the data above.



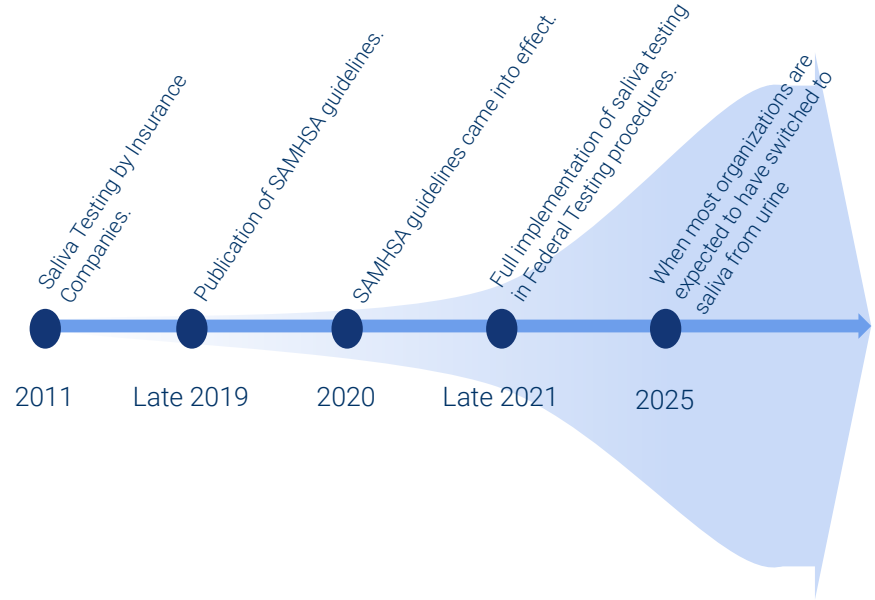


## Saliva will soon be favored by federal and other highly stringent standards.

After 30 years of only permitting lab-based urine testing, in October 2019, the Substance Abuse and Mental Health Services Administration (SAMHSA) published [mandatory guidelines](#) that allow the use of oral fluids (i.e., saliva) in Federal Workplace Testing Programs. These guidelines establish standards and technical requirements for oral fluid collection devices, including initial and confirmatory oral fluid drug test cutoff concentrations, lab methods, and processes for review by a medical review officer (MRO). The guidelines came into effect January 1, 2020.

Since 1988, SAMHSA mandatory guidelines have been used as the blueprint for state drug testing laws, corporate drug testing policies, and legal arguments related to testing. **The SAMHSA changes pave the way for saliva-based instant-result devices and lab-based oral fluid testing to replace urine testing for the Department of Transport (DOT) and other workplaces in the near future.**

### Expanding Adoption of Saliva-Based Testing

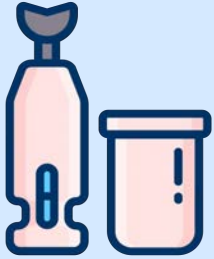


#### PRESCOUTER EXPERT NOTE:

“Saliva-based diagnostic tests have skyrocketed as an effective, non-invasive approach to COVID-19 testing. It’s only a matter of time until regulatory bodies will recognize oral fluid testing as the new gold standard.”

- Maikel Boot, PhD

PreScouter Technical Director Diagnostics

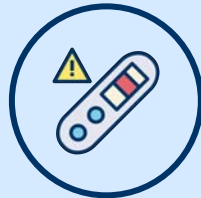


For most substance abuse scenarios, companies will want to rely on lab-based saliva testing, where samples are collected onsite and overnighted to a lab.

For occasions where results are needed immediately, less accurate saliva-based rapid tests are available.



**Lab-based saliva tests**



**Rapid saliva tests**



## Lab-based tests are the most accurate and legally defensible.

Saliva samples are collected using a collection device. These “oral fluid collection devices” come in all shapes and sizes. Variations include the amount of sample required for collection, the time it takes to collect a sample, and whether collection of saliva is active (e.g., requires chewing) versus passive.

For most organizations, PreScouter recommends using a passive saliva collection device. Whereas active sampling requires cooperation and active supervision, with passive collection employees would just need to put the collection stick in their mouth for 3 to 5 minutes. Passive collection decreases user-to-user variability.



*OraSure's Intercept is a passive saliva collection device that is placed under the tongue. Typically sample is acquired within 3-4 minutes. The collection tube comes with a preservative solution to ensure sample quality and stability.*

### How Saliva-Based Lab Testing Works

1



3-4 mins

The Saliva Collection Device is opened and provided to the individual. The device is kept in the mouth for 3-5 minutes.

2



The swab is added into the sample tube that contains preservative solution, and the tube is closed and sealed.

3



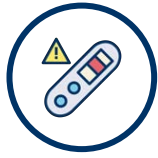
Samples are added to an envelope or box provided with the testing kit and are shipped to the lab overnight.

4



1-2 days

Results are provided within 24 to 48 hours of arriving at lab, though typically on the same day that the sample arrives at the lab.



## When results are needed immediately, consider saliva-based rapid testing.

There are occasional scenarios, such as for reasonable suspicion, when a result is needed immediately. In these cases, a substitute for urine “quick test” cups are saliva-based rapid tests.

Saliva-based rapid tests provide benefits of saliva collection such as easy observation and gender neutrality. These tests fall short in the same way that urine cups do - they do not guarantee the high level of accuracy that a lab test provides.

When a person has just taken a drug, the concentration of drug in their oral fluids is generally at its peak. Even though the sensitivity of saliva-based rapid tests are lower than saliva-based lab diagnostic tests, these tests readily detect the 5 panel drugs Amphetamine, Cocaine, Marijuana, Opiates, and Phencyclidine (PCP) at cutoffs well below 100 nanograms per mL - within 10-15 minutes and onsite. Nevertheless, confirmatory testing through a lab is advised.

### What We Recommend

For most organizations needing rapid testing occasionally



**OraSure- OraTox Instant Test for 6 panel**

OraSure specializes in oral fluid collection devices. They developed the only FDA-approved saliva-based rapid test, called the **OraTox**. This test offers detection of the 6 drug panel within 10 minutes and can be used onsite without a healthcare professional.

Typical Pricing: \$15/test.

PreScouter Dx is able to procure and advise on these devices. Contact us at [testing@prescouter.com](mailto:testing@prescouter.com) to learn more.

When immediate results are needed for testing large numbers of people



**Abbott - SoToxa Mobile Test System with Oral Fluid Cartridges for 5 panel.**

The **Abbott SoToxa** is a handheld saliva-based cartridge reader designed to meet the high performance demands of law enforcement agencies and workplaces. The device is easy to use, portable, and can store up to 10,000 test results. Results can be uploaded to a computer. The device supports different panels.

Typical Pricing: \$6000 for the device, \$30/test.

# ABOUT PRESCOUTER

**USING A NETWORK OF 4000+ EXPERTS, PRESCOUTER DX HAS BEEN HELPING CLIENTS GAIN ACCESS TO THE LATEST AND BEST IN CLASS TESTING SOLUTIONS AVAILABLE FOR THEIR EVERYDAY CHALLENGES.**

For over a decade, PreScouter's experts have provided unbiased expertise and the resources to help the world's top companies with their R&D and innovation challenges.

Since early 2020, PreScouter has expanded its capabilities to help clients deploy testing to safeguard their workplaces.

To learn more, contact us at [testing@prescouter.com](mailto:testing@prescouter.com) or (708) 613-7132.

## OTHER PRESCOUTER CAPABILITIES:



**COVID-19 Testing:** Saliva-based COVID-19 testing for contact tracing, clearing employees to enter work sites, travel, and more. Options include individual diagnostic testing as well as pooled testing for affordable mass testing or regular, ongoing testing.



**Sustainability Solutions:** Carbon accounting to help clients understand their carbon footprint as well as building carbon reduction and management strategies..



**Custom Intelligence, On Demand:** PreScouter's network of 4000+ experts and advanced degree researchers help clients find solutions for difficult challenges.

**Important Disclaimer:** The information provided in this briefing report is based on advice from public health authorities, other regulatory agencies, and vendors, as well as news reports and scientific publications. This information has been analyzed, reviewed, and summarized by PreScouter. It is not a substitute for medical or legal advice about your employees, workplace, or obligations.

