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DRUG TESTING PROCEDURES IN TRUCKING: AN OVERVIEW

UNIVERSITY OF ARKANSAS
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REPORT HIGHLIGHTS

Drug screening via urinalysis has helped assure trucking safety for over three decades. However, its limitations have led some carriers and policymakers to seek alternate methods.

The Federal Motor Carrier Safety Administration may soon begin allowing carriers to submit oral fluid test results instead of urine test results. Saliva testing has advantages over urinalysis, but similar hours-long detection windows.
(See page 5)

Hair testing is used by many carriers who value its months-long detection windows, but concerns over discrimination, driver privacy, and exacerbating trucking's hiring woes may prevent the FMCSA from including hair test results in its public database.
(See pages 7-11)

We examine the merits of each type of testing, the debate over hair testing, and the implications of policymakers' potential actions.

INTRODUCTION

At approximately 7:09 PM on June 25, 2015, truck driver Benjamin Brewer sped into a line of slowed cars in a construction zone on Interstate 75 near Chattanooga, Tennessee.[1] The crash killed six people and injured four others. Four of the deceased, including an eight-year-old and an 11-year-old, were family members whose Toyota Scion burst into flames after the crash. The car's seat belt-wearing driver was ejected upon impact.

The 448 foot crash scene included nine passenger vehicles. Witnesses and first responders were horrified. Brewer was unfazed. The woman who drew his blood for the investigation later testified that she was shocked by Brewer's demeanor.[2] "What's done is done," he said. "Can I go home?"

Evidence presented at Brewer's trial showed that he was driving about 80 mph, seemingly made no attempts to brake as he approached the construction zone, and had gone without sustained rest for 40 hours before the crash. He was also high on methamphetamine.

The crash led many to question how Brewer was allowed to drive a semi-truck in the first place. He had been involved in seven motor vehicle accidents over the previous five years. In 2013, he was fired from a trucking job after a post-crash drug test found opiates in his system.[3] Five weeks before the June 2015 crash,

[1] https://www.ntsb.gov/investigations/AccidentReports/Reports/HAR1601.pdf

[2] https://www.chattanoogan.com/2018/1/22/362026/Woman-Who-Took-Truck-Driver-s-Blood.aspx

[3] In January 2020, the Federal Motor Carrier Safety Administration launched a database to inform carriers about potential hires' testing history.

he failed an unrelated court-ordered drug screen when hair testing showed that he had used methamphetamine. In its 2016 report, the National Transportation Safety Board asserted that the crash showed both the inadequacies of truck driver background checks and the "limitations of the current drug testing program."

The 2015 crash happened during Brewer's first trip for the Cool Runnings Express trucking firm. He had recently passed a mandatory pre-employment urine drug screen. Hair testing might have picked up his seemingly habitual drug use and prevented the disaster. While urinalysis typically shows drugs taken within a few days of the test, hair testing goes back months.

Like most trucking firms, Brewer's employer did not perform hair testing. Hair testing costs roughly twice as much as urinalysis and the Federal Motor Carrier Safety Administration (FMCSA) Drug and Alcohol Clearinghouse does not accept hair test results. Some carriers conduct hair tests to improve safety performance and reduce crash-related liability.[4] Massive court-ordered "nuclear verdicts" have become increasingly common after truck crashes; a Florida jury recently handed down a $1 billion verdict.[5] But carriers who conduct hair tests must bear the additional costs of performing pre-employment urine testing on their drivers to submit those results to the FMCSA Drug and Alcohol Clearinghouse.

In 2015, Congress gave federal agencies the green light to mandate hair testing, but it remains to be seen if they will ever do so. Some large carriers argue that mandatory hair testing is a no-brainer given the public safety issues. Others - especially labor unions and independent owner-operator associations - see it as government overreach that would invade drivers' privacy, exacerbate the driver shortage, and unfairly target those with dark hair.

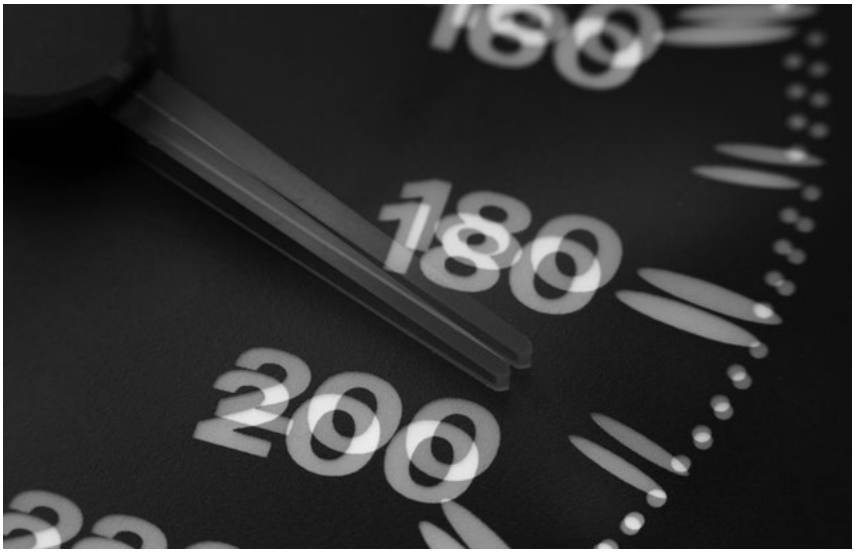
This paper outlines the merits of urine, hair, and saliva testing. We also examine the debate over hair testing and the implications of policymakers' potential actions.

[4] Benjamin Brewer was sentenced to 55 years in prison in 2018. Cool Runnings Express filed for bankruptcy and ceased operations the following year. Owner Billy Ray Sizemore noted that the company had assets of $101,423.93 but owed over three times that much in lawsuit claims. A federal civil trial against Brewer and Cool Runnings Express is pending.

[5] https://www.jacksonville.com/story/news/2021/08/24/connor-dzion-verdict-100-million-jacksonville-nassau-county/5571037001/

BACKGROUND

As the federal government declared war on drugs in 1971, Richard Nixon initiated America's first widespread drug testing program by ordering that soldiers have their urine screened upon returning from Vietnam.[6] "Truck-driving country" music hit its peak around that time, with songs like "Six Days on the Road," "Freightliner Fever," and "Caffeine, Nicotine, Benzedrine (And Wish Me Luck)" helping forge a durable link between trucking and drugs – particularly stimulants – in the popular conscious.



Despite growing antidrug sentiment, the 1971 reclassification of amphetamines as a controlled substance, and the destructive potential of an impaired driver operating a 70 foot, 80,000 pound tractor trailer, nationwide driver drug testing did not begin until 1991. A fatal 1987 train collision involving crewmembers who tested positive for marijuana served as the catalyst for mandatory drug testing of train conductors, pilots, bus drivers, and truckers.

Today, the FMCSA requires trucking firms to screen all new hires and randomly test 50% of their drivers annually using urinalysis. Testing is also required after crashes involving injury, fatality, or a towed vehicle. Drivers must be screened using a 5-panel test that detects marijuana, cocaine, opioids, amphetamines, and PCP.[7] In much the same way that hair testing and saliva testing are optional, carriers may choose to screen for additional substances. However, the FMCSA does not enter those optional findings into its Drug and Alcohol Clearinghouse database. So, a driver who fails a hair test, saliva test, or 12-panel urine test conducted by one firm may have no problem getting hired by another carrier that only performs a mandatory 5-panel urinalysis.

[6] https://blog.employersolutions.com/ask-the-experts-the-history-of-drug-testing/
[7] Firms are also required to randomly alcohol test 10% of their drivers each year.

URINE, SALIVA, AND HAIR TESTING

Urine screening has long been the gold standard for workplace drug testing. 90% of American companies who conduct screening do so via urinalysis.[8] However, its limitations have led many firms to seek alternate methods.

One problem with urine testing is that it generally only reveals drugs used in the previous 24-72 hours. The short look-back window, combined with the relatively infrequent testing requirements (only 50% of the workforce must be tested annually), results in a relatively low probability that any single instance of drug usage will be detected.

Urine testing is also prone to tampering. "Direct observation" testing is reserved for those who have previously submitted suspicious specimens, so most urine tests offer ample opportunity for trying to cheat by using a masking agent, synthetic urine, or someone else's urine. Studies show that as many as 3% of urine specimens have been altered or substituted.[9] Labs check temperature, pH, and creatinine levels to detect tampering, but it is unclear how often cheating goes unnoticed.

Saliva testing is used by 10% of employers. Oral fluid testing's maximum detection window is around 48 hours, which is less than urinalysis in some cases. But saliva testing has advantages over urinalysis. Specimens are collected by swabbing the inside of the cheek, allowing for convenient onsite testing and limiting opportunities for tampering.

Hair testing, which is used by 7% of companies who screen their employees, has much longer detection windows than urine or saliva testing. Most hair screening looks back three months because a 1.5" sample is tested. Longer hair samples can show drug use going back a year or more.

Hair testing's three-month detection window effectively increases monitoring intensity and yields far more positive tests than other methods. When KLLM Transport Services began hair testing its drivers in 2018, they saw a 13.1% positive rate – far higher than the 2.52% positive rate of their urinalysis.[10] Other firms report similar results.

[8] https://www.shrm.org/resourcesandtools/hr-topics/talent-acquisition/pages/hair-saliva-urine-drug-testing-methods-specimens.aspx

[9] https://ndasa.com/2021/02/04/oral-fluid-testing-soon-but-not-yet/ alcohol test 10% of their drivers each year

[10] https://www.ccjdigital.com/business/article/14939870/agencies-years-late-on-mandate-to-reform- driver-drug-testing

	TA (HAIR) 2017-2020	DAC (URINE)	TA (URINE) 2017-2020	TA (HAIR) – DAC (URINE)	TA (HAIR) – TA (URINE)
Opioids	24.98%	10.64%	9.78%	14.34%	15.20%
Amphetamine & Methamphetamine	15.67%	18.96%	13.08%	-3.29%	2.59%
Cocaine	31.05%	14.85%	14.59%	16.20%	16.46%
Marijuana	27.41%	55.18%	61.82%	-27.77%	-34.41%
MDMA (Ecstasy)	0.73%	0.12%	0.09%	0.61%	0.64%
Phencyclidine (PCP)	0.16%	0.26%	0.64%	-0.10%	-0.48%

Notes: The table above compares the differences in drugs detected by using Trucking Alliance hair positivity rates as a baseline and subtracting Clearinghouse urine and Trucking Alliance urine positivity rates. Results are color coded red when Trucking Alliance hair tests had a higher positivity rate for the drug and green when Trucking Alliance hair tests had a lower positivity rate for the drug. Comparing substances detected in The Trucking Alliance hair tests with those in The Trucking Alliance and Clearinghouse urine tests indicates hair testing may yield the greatest benefit in uncovering drivers who use cocaine and opioids.

A recent study analyzed four years of matched hair and urine drug test results submitted by U.S. Express, Cargo Transporters, Dupre, JB Hunt, KLLM, Knight/Swift, Maverick USA, and Schneider National; prominent trucking firms who are members of the Alliance for Driver Safety and Security (The Trucking Alliance). This data was compared to urine test data drawn from FMCSA's Drug and Alcohol Clearinghouse.

Trucking Alliance hair data reveals differing sensitivities across hair and urine tests for different drugs. Conditioning on drug detection, cocaine is the most detected drug for hair tests, with 31.05% of positive hair test results indicating cocaine usage. Marijuana was second at 27.41% and opioids were third at 24.98%. The cocaine and opioid detection rates were much higher for hair tests than urine.

For Trucking Alliance drivers in the sample, 6.11% of drivers failed the hair test, while only 0.74% of Trucking Alliance drivers failed the urine tests, underscoring the greater monitoring intensity achieved with hair testing. If the Trucking Alliance hair failure rate were generalized to the DAC sample, an additional 58,910 Clearinghouse drivers would have failed drug tests in 2020 if they submitted to hair testing.[11]

Though it has a very long detection window, hair testing has its limitations. Hair's slow growth rate means testing will not detect drugs that were used a few days beforehand. Moreover, despite the popular belief that hair testing is a seemingly "unbeatable" method, studies show that it can fail to pick up some drug use, particularly if that use is infrequent or the user has bleached or dyed hair.[12]

CARRIER CONCERNS

Large carriers have led the push to get FMCSA to recognize hair testing results.[13] Large firms have higher turnover rates and hair testing helps ensure that new drivers are not drug users. Large carriers' size also makes "soft monitoring" more difficult. The owner of a small firm has greater opportunity to interact with drivers, understand their behaviors and life stresses, and detect signs of drug use. Large carrier managers have fewer opportunities to interact with each driver, so hair testing helps ensure that drivers are staying on the straight and narrow.

Large carriers also have a greater liability cross-section than their small counterparts. Though we can assume that all carriers want to minimize crashes and no one relishes the possibility of their actions – or inaction – leading to someone's death, small carriers' relatively limited assets effectively cap their liability after a crash. If the courts hand down a multimillion dollar "nuclear

[11] DAC sample = 1,429,842 drivers. (1,429,842 x 6.11%) – (1,429,842 x 1.99%) = 58,910. The positivity rate in the DAC sample is 1.99%.

[12] https://pubmed.ncbi.nlm.nih.gov/30851603/

[13] https://www.freightwaves.com/news/will-biden-steer-hair-based-drug-testing-to-the-exit-ramp/amp

verdict" against a small carrier, the victims typically have to rely on payments from the firm's insurance company to receive full restitution. Small carriers can also file for bankruptcy and cease operations after a crash without affecting the livelihoods of many people. Large carriers with thousands of employees and millions or billions in assets face a different reality after a drug-induced crash, including a high likelihood that they will remain in business while paying significantly higher insurance premiums.

Some large carriers report that it is not uncommon for potential drivers to contact a firm about employment only to lose interest after learning that they hair test.[14] Ostensibly, many of those people are illicit drug users who are eventually hired by firms that only perform 5-panel urinalysis. Drivers who fail a hair test at a large firm – but do not fail the required urinalysis – are not currently entered into the FMCSA's database and may have no problem being hired by another firm.

The link between hair testing and the driver shortage raises a key issue. A recent study estimates that around 275,000 of the 3.5 million active drivers would either fail hair tests or refuse to take them if hair testing was mandated industrywide.[15] In the short-term, more widespread hair testing would likely worsen trucking's longstanding hiring and retention difficulties by removing drug users from the hiring and driving pool. However, on the positive side, this may also increase roadway safety.

[14] https://www.ccjdigital.com/business/article/14939870/agencies-years-late-on-mandate-to-reform-driver-drug-testing

[15] https://ilitchbusiness.wayne.edu/supply-chain/jtm_voss_cangelosi_truck_driver_drug_testing_accepted_pre-publication_version_070620.pdf

DRIVER CONCERNS

Basically, if I smoked a bowl [sic] at a party last summer, I can be prevented from gaining employment now. This seems highly intrusive to me...[16]

[Marijuana] is behind me and I hope trucking is my new future but I don't want to be stopped before I start because of a stupid mistake. I really want to do this but I'm scared I won't get hired and have this go on a longer term record. Any advice? Know of any companies that only do urine so I can get into the business and get all this childish [stuff] behind me?[17]

Driver views are more difficult to generalize. While some drivers favor the increased monitoring intensity of hair testing, others believe hair testing is needlessly invasive and favor less intensive drug monitoring in general. While detection windows for urine and saliva testing can be localized to driving activities, the longer detection window provided by hair testing has a higher likelihood of detecting drugs a driver used while off the clock.

The types of drugs detected by hair and urine tests also is an area of concern. Although drivers can get approved to use prescription amphetamines or opiates,[18] no such exceptions are made for marijuana, which remains illegal at the federal level even as a growing number of states allow its medical or recreational use.

There are also concerns that hair testing is potentially discriminatory.

In 2016, the Equal Employment Opportunity Commission found probable cause to believe that J.B. Hunt was in the wrong when it refused to hire four Sikh men whose religious beliefs prevent them from removing their turbans in public or providing hair samples.[19] The firm settled a lawsuit by paying the men $260,000 and extending unconditional offers of employment. The company also changed its policies and procedures.

The scientific evidence on whether hair testing has differing sensitivities based on phenotypic characteristics related to race is mixed. Lab studies have found that hair testing is better at detecting drug use by brown or black-haired people since many drugs bind to melanin.[20] Other research suggests that both African-Americans' hair texture and certain popular ethnic hair products cause an inordinate amount of false positives from environmental contaminants.[21] On the other hand, recent field studies of hair and urine test results found no evidence that hair testing is racially biased.[22]

[16] https://www.reddit.com/r/Trucking/comments/1ci5ky/question_on_trucking_companies_and_drug_testing/

[17] https://www.reddit.com/r/Trucking/comments/30qobt/drug_test_question/

[18] https://www.fmcsa.dot.gov/faq/what-medications-disqualify-cmv-driver

[19] https://www.natlawreview.com/article/recent-challenges-to-use-hair-follicle-drug-testing

[20] https://pubmed.ncbi.nlm.nih.gov/21116784/

[21] https://pubmed.ncbi.nlm.nih.gov/26338354/

[22] https://ilitchbusiness.wayne.edu/supply-chain/jtm_voss_cangelosi_truck_driver_drug_testing_accepted_pre-publication_version_070620.pdf

WHAT'S NEXT?

In November 2020, the Massachusetts Appeals Court determined that the city of Boston owed millions in back pay to six police officers – five black men and one white woman – who were fired because of hair testing results.[23] That ruling came one year after the Massachusetts Supreme Judicial Court found that a white man's application to the Boston Police Department should not have been rejected based on hair testing results alone.[24]

Two months before the Massachusetts Appeals Court's ruling, the Substance Abuse and Mental Health Services Administration (SAMHSA) sought comment on a proposal to allow federal agencies like the FMCSA to begin collecting hair testing results along with backup saliva or urine results.[25] The agency explained the requirement for backup testing to confirm drug use by citing concerns that hair testing is discriminatory.

Carriers who support hair testing and those who oppose it found common ground in their opposition to the proposal. Hair testing's opponents believe it would legitimize a costly, unnecessarily invasive, and potentially biased practice. Hair testing's supporters view the proposal as a step backward since it would create many situations where drivers fail hair tests while passing urine or saliva tests. Positive hair testing results would not be entered into the FMCSA Drug and Alcohol Clearinghouse database in those situations.

In March 2021, several large carriers petitioned the FMCSA to begin including hair testing results in its public database and efforts to educate regulators on the benefits of hair testing continue.[26] In the meantime, carriers who use hair testing to screen drivers could face legal challenges in the wake of the Massachusetts rulings.

The controversy surrounding hair testing may prevent those results from ever being included in the FMCSA's Drug and Alcohol Clearinghouse database, never mind the possibility of

[23] https://www.boston.com/news/local-news/2020/11/11/boston-owes-millions-police-falsely-accused-of-drug-use/

[24] https://www.bostonglobe.com/metro/2019/10/30/state-high-court-drug-test-hair-not-enough-disqualify-boston-police-candidate/kDtSTkOAoQ0V5SjenpYoDP/story.html?p1=Article_Inline_Text_Link

[25] https://www.federalregister.gov/documents/2020/09/10/2020-16432/mandatory-guidelines-for-federal-workplace-drug-testing-programs

[26] https://www.freightwaves.com/news/carriers-pressure-fmcsa-to-act-on-drug-hair-test-exemption-request

mandatory industrywide hair testing.

But saliva testing may be a different story. SAMHSA floated an oral fluid testing proposal in October 2019 and the Department of Transportation has released testing forms with checkboxes for both urine and oral fluids.[27]

Allowing carriers to test oral fluids instead of urine would cut down on tampering and make testing more convenient. It would also allow for a smooth transition if marijuana is eventually legalized federally. Saliva testing's roughly five-hour cannabis detection window makes it a much better gauge of whether a driver is operating under the influence than urine testing, which may pick up weeks-old marijuana use.

However, allowing carriers to perform saliva testing instead of urinalysis would be a lateral move in many ways. Both types of testing have short detection windows compared to hair testing, making it easy for some drug use to go unnoticed.

CONCLUSION

Benjamin Brewer's 2015 crash highlights the limitations of drug testing via urinalysis.

Brewer passed a pre-employment urine test administered nine days before the crash. He also passed a urine test that his employer conducted 38 hours after the crash. However, a blood sample drawn 1.5 hours after the crash tested positive for methamphetamine and he failed a court-ordered hair test five weeks before the crash.

It is unclear if the "partially empty bottle of Advanced Detox Solutions Immediate Cleanser 2" investigators found in the sleeper berth of Brewer's truck helped him pass the urine tests. Brewer insisted the bottle was not his, despite having cleaned the sleeper berth a week before the crash. If the product did help Brewer pass his pre-employment urine drug screen, then pre-employment hair testing would have likely detected what urinalysis could not.

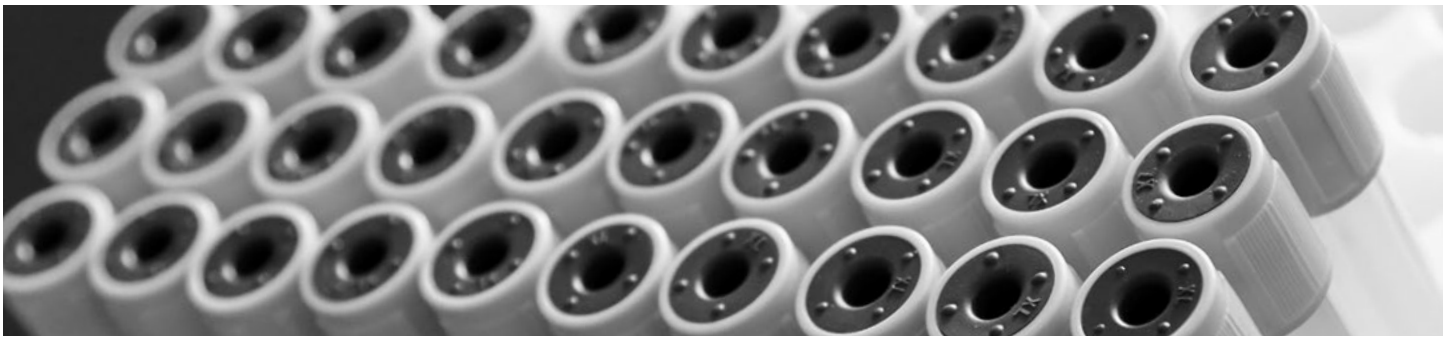
Policymakers face a difficult task as they try to balance carrier, driver, and public concerns over hair testing.

On one hand, they must consider privacy issues, legal rulings against hair testing, scientific disagreement over whether hair testing is discriminatory, and the fact that more widespread hair testing would shrink the labor pool of an industry that already struggles to recruit and retain drivers.

[27] https://www.federalregister.gov/documents/2019/10/25/2019-22684/mandatory-guidelines-for-federal-workplace-drug-testing-programs-oralfluid; https://ndasa.com/2021/02/04/oral-fluid-testing-soon-but-not-yet

They must weigh those issues against public safety concerns. Allowing carriers to submit hair test results to the Drug and Alcohol Clearinghouse without also paying for urine tests would likely lead to more widespread hair testing and fewer Benjamin Brewers on the road. In 2020 alone, allowing firms to submit hair test results would have kept 58,910 drug users off the road.

Prominent U.S. trucking companies have already weighed these issues and decided that the benefits of hair testing outweigh the risks. It remains to be seen if federal policymakers will follow suit.



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