How Fatigued Truckers Can Save Correctional Administrators Time and Money

By Lee Mockensturm

Author's Note: *Opinions or points expressed in this article are those of the author and do not necessarily reflect the official position of the U.S. Department of Justice (DOJ). Listing a product or vendor does not constitute an endorsement of that product or vendor by the DOJ.*

How can fatigued truckers help correctional administrators save money, make drug testing in facilities less invasive and keep staff at peak performance? Well, they can't — at least not directly. But a technology being tested to help keep them off the roads may be able to accomplish all those tasks. At the start of 2000, Michigan State Police began testing a device that measures the fatigue level in truck drivers in an effort to prevent the estimated 40 percent of fatal crashes involving big rigs caused by drivers' fatigue. The Illinois State Legislature has approved the purchase of 15 of these devices to be used in an 18-month study to determine fatigue in motorists. Additionally, Illinois state troopers will be tested for drug use — something of critical interest to correctional agencies. The same technology also can be used as a noninvasive drug-testing device, which could save correctional administrators both time and money.

The device being tested in Michigan and Illinois uses a science called pupillometry — the measurement of pupil parameters under various lighting conditions and external stimuli, or more simply, the pupils' response to light. Impairment detection then involves the automated analysis of those readings, searching for predetermined out-of-bound conditions. The particular device used by these agencies, named EyeCheck™, resembles a pair of binoculars plugged into a laptop computer. The binocular component measures the pupils' response and stores the information, which then is retrieved and read by the laptop computer. The process takes about one minute.

Bringing Pupillometry To Corrections

In 1998, Paul Kirby, commissioner of the West Virginia Department of Corrections (DOC), attended the first National Commercialization Conference (NCC) in Orlando, Fla. This conference is sponsored by the Office of Law Enforcement Technology Commercialization (OLETC), part of the National Institute of Justice's (NIJ's) National Law Enforcement and Corrections Technology Center (NLECTC) system.

John Dal Santo, president of MCJ Inc., and developer of EyeCheck™, was invited to NCC by Wayne Barte, a program manager at OLETC, where EyeCheck™ had been demonstrated. Barte introduced Kirby to Dal Santo, who proceeded to explain his idea and what it could do for correctional agencies. Kirby immediately was interested in the technology because of its potential use as a noninvasive, cost-saving, drug-testing device. He saw this as an opportunity to move away from the current reliance on costly urinalysis testing.

After expressing his interest in the pupillometry technology and its potential uses to Dal Santo, Kirby arranged to have the technology demonstrated in West Virginia. At that demonstration, Kirby proposed that the West Virginia DOC become the correctional community's test bed for the technology. Test beds included the inmate classification section in Mount Olive Correctional Center, the Charleston Post-Release Center, the Huntington Post-Release Center and a prerelease minimum-security facility in Pruneytown.

Testing the Technology In West Virginia

The first order of business was to see whether the technology would be as reliable and accurate as urinalysis, the primary method for drug testing used by the West Virginia DOC. An ongoing relationship with the Illinois state police began when that agency first showed interest in the technology and allowed Dal Santo, along with two Illinois state troopers, to perform the tests in West Virginia. One officer collected the urine samples and the other operated the device; neither the samples nor the device were ever touched by Dal Santo or his team. The samples then were sent to a lab where they underwent urinalysis using the EMIT® process — a neuroimaging drug-testing technique developed by the National Institute for Drug Abuse. Samples also were frozen and sent to the Illinois State Crime Lab and put through gas chromotography testing, which is more sensitive than urinalysis.

The results showed that the pupillometry device is an accurate predictor of drug use when compared to urinalysis and other testing methods and, thus, a technology using pupillometry can offer corrections a valid, quick, noninvasive method for drug testing.

The testers also made an unexpected discovery — the system was able to detect indications of the use of inhalants, or "huffers." This was a welcome surprise since, even though West Virginia employs an advanced method of urinalysis, according to Kirby, its previous testing was unable to detect use of this type of drug.

Once West Virginia officials were convinced it was reliable, they allowed themselves the luxury of contemplating all the potential advantages to implementing this new technology into their system.

Saving Money

A 1998 survey conducted by the Bureau of Justice Statistics found that nearly seven in 10 jail jurisdictions had policies to test inmates or staff for drug use. Reported testing methods included urinalysis, as well as and blood, hair and saliva analysis. Of those that had an inmate-testing policy in place, "... more than two-thirds of the jurisdiction selected inmates for testing on indications of use, about half selected inmates at random and 5 percent had a policy to test all inmates at admission."

During a one-month period in 1998, more than 36,200 samples were collected from detainees in 712 jurisdictions. Of those samples, just a little more than 10 percent had positive results. That leaves approximately 32,399 samples testing negative. At about $15 per test, those negative test results cost these jurisdictions more than $485,000. If samples from even half of those detainees testing negative never were taken because it was shown in some other way that the detainee was unlikely to have recently used drugs, those jurisdictions would have saved more than $240,000 in one month. The technology may be used as an initial screen for drug use, and other, more expensive tests may be used only when initial testing shows positive results. This is the type of savings and use of the technology that Kirby envisioned when he decided to bring the device to West Virginia for testing.

The potential savings from the use of this technology are substantial, but it is important to keep in mind that this type of device requires an initial outlay of money that could be prohibitive for smaller jurisdictions — the test units purchased by the Illinois state police cost an estimated $7,500 per unit. There are no additional costs beyond the initial purchase. A final market price has yet to be established.

Saving Time

In addition to the financial benefits of using the system, the West Virginia DOC also discovered that it could test an entire 50-man block in about one-half hour — drastically less time than it would take to collect samples from the same number of inmates. Not only does each test using this technology require less staff time than collecting urine samples, the results virtually are immediate — there is no waiting for lab results to determine whether further steps are necessary. This time savings could make mandatory testing a feasible reality, which, in turn, could erase the issue of profiling that can arise when randomized testing is conducted.

Although using this device can save staff time, it is important to note that since results obtained from this technology have not been tested in court, its use will be limited to probable cause findings. This means that a positive result indicates that an individual must be retested using traditional methods. Use of this test in court will depend on correctional and law enforcement agencies. If agencies decide to use this test as the final, definitive method, it can be used in courts. However, those currently using the test have not expressed intentions of using it as a final test and plan to use it as a follow-up for positive urinalysis tests.

Limiting Health Risks

This technology represents a noninvasive drug-testing technique — a benefit to both staff and inmates. Staff administering urinalysis tests run the health risk of coming into contact with inmates' bodily fluids. Using a noninvasive test could eliminate the need for the collection of nearly 90 percent of urine samples, since only those showing signs of impairment would require further testing. Submitting to urinalysis testing also can be embarrassing and uncomfortable for inmates. A noninvasive method for drug testing helps make the best of an already tense situation.

Keeping Staff at Their Best

According to the National Safety Council, injury-related workplace accidents cost all U.S. industries an estimated $125 billion in medical costs and lost wages and productivity in 1997. In many of those accidents, fatigue and drug use played major roles — problems to which correctional facilities are not immune. A device using pupillometry could give administrators a noninvasive tool to monitor possible drug use and fatigue in staff. For example, NIJ funded a Police Executive Research Forum (PERF) study on police officer fatigue that used a device based on eye-tracking technology as an objective tool for a fitness-for-duty test. In that study, researchers used PMI Inc.'s FIT2000 Fitness-for-Duty Impairment Screener as an objective measure of officer fatigue and fitness for duty.

Fitness-for-duty testing can be used for analytical studies that can help identify how organizational policies and changes can affect staff performance. Kirby envisions using the technology to learn things such as how a shift change or the amount of mandatory overtime can affect an officer's effectiveness and decision-making capabilities. In addition to the study by PERF involving law enforcement officers, a military organization used the FIT2000 to understand how cutting crew members on a vessel would impact alertness levels, several railroads have used it to assess the effectiveness of changes in scheduling policies to reduce fatigue and a transportation company has used the test to select individuals to send for further drug testing.

Where's All This Technology Now?

Thanks to an inventor, some researchers, a government agency and a corrections official, technology using the reactions and movement of the eye now are available to the field of criminal justice. Dal Santo identified the technology's potential to fill a market need and designed the system. Researchers using pupillometry and eye-tracking technology showed the validity of the devices and how they can be used by criminal justice agencies. NIJ, through OLETC, provided encouragement and helped guide the inventor through the maze of commercialization. Kirby recognized the potential benefits of the technology and took the lead to demonstrate its effectiveness in a

correctional setting. Working together, this disparate group has brought a potentially valuable tool for all of corrections from concept to practice.

Following are valuable contacts to receive additional information concerning corrections technology. For more information on OLETC, contact Wayne Barte, program manager, at (888) 306-5382; Web site: http://www.oletc.org. Anyone interested in West Virginia's experiences with this technology may contact Paul Kirby, commissioner of the West Virginia DOC, at (304) 559-2037. For more information on the EyeCheck™ system, contact John Dal Santo, president of MCJ Inc., at (815) 966–0196. For additional information on the FIT®2000 system, contact Larry Rouvelas, executive vice president of PMI Inc., at (301) 816–9212, ext. 203; Web site: http://www.pmifit.com.

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