



LabINFO NEWSLETTER

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This newsletter is provided by the Lorain County Crime/Drug Lab discussing technical and general information dedicated to local agencies within Lorain County. The information has been collected from various sources and journals.

TO AUTOMATE OR NOT TO AUTOMATE

Instant Cup Drug Testing or In-House Automated Laboratory Drug Testing

Author: Judge Brian MacKenzie (ret.), 52nd District Court 1

The adult drug court model reduces criminal recidivism when it adheres to evidence-based and best practices. Drug courts have the potential to break the repeated cycle of incarceration, save lives, and restore families at costs significantly less than traditional sentencing practices (National Drug Court Institute [NDCI], 2016; U.S. Government Accountability Office, 2011). Effective drug testing and monitoring is among those key program components for every problem-solving court (NDCI, 2016).

Drug courts are among the most studied criminal justice programs and the results are clear. The model can reduce recidivism (rearrests) by 30 to 50% (Carey et al., 2012; Lowenkamp et al., 2005) with the best outcomes achieved when high quality program services match the needs of the target population (Marlowe et al., 2012; National Association of Drug Court Professionals [NADCP], 2013 & 2015). Drug testing is among the most vital practices and the way in which services are operated matters, but not all approaches are equal.

Currently, there are a few different options for how problem-solving court professionals can operate drug testing services. The most common are *Instant Cup drug testing/Dipstick drug testing*, or an *In-House Automated laboratory Drug testing*, which includes equipment such as an analyzer. *While there are pros and cons to each approach, automation is the clear winner regarding accuracy, ease of use, and in many cases, cost.*

RESULTS MATTER

Accurate drug tests drive better program outcomes. Automation adds significant improvements over instant dipstick drug testing because instant drug testing does not offer quantitative data to drive decision-making and often has cutoff levels that are too high for



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accurate drug use interpretation. You also lose the ability to adjust drug panels to the changing demands of the target population and accommodate new drugs of abuse. Automation delivers on all these factors: semi-quantitative results, lower level cutoffs, tailored drug panels and error free reporting.

Automation allows for adjustable cutoff levels and semi-quantitative results that ensure the most accurate picture of drug history. Instant/dipstick drug test are missing important information as many drugs are metabolized at a higher rate and concentrations may fall below the instant drug test level of detection. Alcohol, Cocaine, Methamphetamine and Opioids all fall into this category. Lower cutoff levels and semi-quantitative results make all the difference as to what you can uncover from a very narrow detection window for most abused substances. While indication of sub-cutoff concentrations should not necessarily result in sanctions, they are certainly a basis for further investigation and increased monitoring.

Without the ability to monitor flags and analyze levels (semi-quantitative detection), participants/clients would be graduating from the program or sanctions/supervision reduced while using drugs the entire time (i.e., drug court, probation, treatment, etc.). Program that do not look at levels are missing the point of what the clients do. They manipulate and would miss too much. Semi-quantitative results may further help programs with participants approved for Medication-Assisted Treatment (MAT), as drug levels can be tracked overtime to monitor compliance with prescription dosage. This is particularly important as MAT prescriptions such as Buprenorphine and Methadone are subject to abuse. In addition, automation enables practitioners to monitor THC/Creatinine ratios over time to help determine if a marijuana positive is the result of new use or because of residual drugs in the system. This is specifically relevant for new participants who have a history of chronic marijuana use.

THC can remain in the system long after they have abstained, making abstinence monitoring difficult in these cases.



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Automation indirectly supports effective behavior modification as certainty and timing are essential factors when administering incentives and sanctions (Harrell & Roman, 2001; Marlow & Kirby, 1999). Behavior modification, done well, is one of the accountability court practices that set the model apart from conventional programming and helps deliver the 30 to 50% reduction in re-arrest rates. Automation delivers a superior level of detection for many drugs of abuse, which means missing fewer incidents of use. That promotes improved program responsiveness to participant behavior. Program administrators and judges can have confidence that those responses are grounded in reliable data which minimizes human error due to manual reporting and subjective interpretation of results. The same cannot be achieved with urine Instant Cup/Dipstick drug testing.

Also, automation utilizes cutoffs that provide both information and insight, and allows for tailored drug panels that make the most sense given participant drug use histories; this gives practitioners high-confidence in the results, especially with the additional insights provided by semi-quantitative data. The presence of an In-House automated analyzer gives the interdisciplinary team the most accurate and timely information to make informed decisions in every participant's case.

PERCEIVED vs REAL EASE OF USE

Many problem-solving court professionals believe that Instant Cup/Dipstick drug tests offer the simplest and cheapest solution for the drug testing needs. In reality, these tests often coincide with a greater reliance on confirmation labs that are costly and time-consuming. In addition, subjectivity plays an uncomfortably large role in the interpretation of Instant Cup/Dipstick testing results. *It was only a faint line, so it must be negative, right?* Given that these results can have real impacts on participant liberties, this is big concern.

Automation provides real ease of use and ease of mind. Greater confidence in the results means less reliance on confirmation testing (GC/MS). No need to worry about the test results being misinterpreted visually (r/o red-green deficiency), as the analyzer very accurately interprets the results for you.

"The more frequently Drug Courts and probation programs perform urine drug testing, the better their outcomes in terms of higher graduation rates and lower drug use and criminal recidivism." Adult Drug Court- Best Practices Standard Vol. II.



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KROKODIL

Desomorphine, known by the street name *krokodil*, is an opioid derivative of *codeine*. Like heroin and other opioids. It has a sedative and analgesic effect, is highly addictive, and potentially harmful! Of note, *krokodil* is presumed to contain desomorphine, but due to illicit, home-based, manufacturing, it may contain other unknown ingredients, or in fact, no desomorphine at all.

Homemade versions of the drug start with codeine, and can be 'cooked' similar to illicit methamphetamine production. Organic solvents such as gasoline, paint thinner, or lighter fluid, iodine, hydrochloric acid, and red phosphorus (from matches) are used in homemade synthesis. These dangerous chemicals are not always fully 'cooked' out of the concoction when used to make illicit *krokodil*.

Those who inject these caustic agents into their veins can develop extreme skin ulcerations, infections, and **gangrene** - a discolored (green, black) scale-like skin that resembles a crocodile, hence the street name "krokodil". *Krokodil* also refers to chlorocodide, a codeine derivative in the synthetic path to desomorphine. *Krokodil* is also called "Russian Magic", referring to its short duration of opioid intoxication (euphoria).

PERFORMANCE-ENHANCING DRUGS AND TEEN ATHLETES

By Mayo Clinic Staff (www.mayoclinic.org)

Performance-enhancing drugs can be tempting for teen athletes. Understand the warning signs and what you can do to keep your teen from using shortcuts to improve athletic performance.

We're all familiar with famous athletes who've admitted to using performance-enhancing drugs. So it's no surprise that as many as 1 in 20 teenagers' reports using steroids to increase muscle mass.

If you're the parent of a teen, talk about the dangers of performance-enhancing drugs. By explaining the consequences of using performance-enhancing drugs, you can help your teen steer clear.



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Among teens, common performance-enhancing drugs and supplements include:

Creatine is a naturally occurring compound in the body that's also sold as an over-the-counter supplement. It's used to improve performance during high-intensity bursts of activity and increase muscle mass and strength. Creatine affects different people in different ways.

Creatine has its downsides, and side effects include high blood pressure, aggression, water retention and skin rashes, according to Mayo Clinic. Those aged 18 and under, pregnant women, and individuals with kidney problems, psychiatric disorders, impaired liver function or irregular heartbeats should avoid using creatine.

Anabolic steroids. Anabolic steroids are synthetic versions of the hormone testosterone, used to build muscle and increase strength.

Anabolic steroids work differently from other drugs of abuse; they do not have the same short-term effects on the brain.

Abuse of anabolic steroids may lead to mental problems, such as:

- paranoid (extreme, unreasonable) jealousy
- extreme irritability
- delusions*—false beliefs or ideas
- impaired judgment

Extreme mood swings can also occur, including "roid rage"—angry feelings and behavior that may lead to violence.

Steroid precursors. Steroid precursors, such as androstenedione ("andro") and dehydroepiandrosterone (DHEA), are substances that the body converts into anabolic steroids. They're used to increase muscle mass. Most steroid precursors are illegal without a prescription. DHEA, however, is still available in over-the-counter preparations.



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Because steroid precursors can have dangerous side effects, many of these products now are illegal without a doctor's prescription. DHEA is the only one that remains unregulated and still available in stores. Unfortunately, even though most dietary supplements with steroid precursors are no longer available over the counter, they can be obtained illegally. Some are smuggled into the United States, or produced in secret labs, or sold over the Internet. *Because these products are not regulated, they can be contaminated, fake or labeled incorrectly.* Steroid precursors, or other dangerous substances, may not be listed in the packaging of supplements sold in stores. [Source: JCEM](#)

Nearly 1 in 3 students in 12th grade report past year use of some kind of vaping device, raising concerns about the impact on their health. What they say is in the device, however, ranges from nicotine, to marijuana, to "just flavoring." The survey also suggests that use of hookahs and regular cigarettes is declining. These findings come from the 2017 Monitoring the Future (MTF) survey of eighth, 10th and 12th graders in schools nationwide, reported by the director of the National Institute on Drug Abuse (NIDA), part of the National Institutes of Health, along with scientists from the University of Michigan, who conduct the annual research. [\[Source: www.drugabuse.gov\]](http://www.drugabuse.gov)

HOW DOES ALCOHOL GET INTO YOUR BREATH?

When a person drinks alcohol (Ethanol), the alcohol is absorbed throughout all the water-bearing tissue in a person's body, including the blood. Deep in our lungs, as a part of the respiration process, a tiny amount of alcohol "evaporates" from the blood into the lungs. When a person exhales, the alcohol that "evaporated" from the blood appears in their breath. Scientists have established (Henry's law) that the ratio of alcohol in breath and alcohol in blood is consistent. Therefore, a breath test gives an accurate measure of intoxication levels. [\[Source: www.alcopro.com\]](http://www.alcopro.com)



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The U.S. Food and Drug Administration along with the Centers for Disease Control and Prevention (CDC) and state and local officials are investigating a multi-state outbreak of Salmonella infections linked to products reportedly containing kratom. [Source: www.fda.gov] February 20, 2018.

Fast Facts

The FDA is advising consumers to avoid kratom and kratom-containing products. These products have been linked to a multi-state outbreak of [salmonellosis](#) from a rare strain of *Salmonella*. Mitragyna speciosa, commonly known as kratom, is a plant that grows naturally in Thailand, Malaysia, Indonesia, and Papua New Guinea.

The CDC reports that 28 people in 20 states are infected with *Salmonella* | 4,[5],12:b:-. Eleven people have been hospitalized.

During interviews conducted by health officials, ill people were asked about the foods they ate and other exposures before they became ill. Eight (73%) of 11 people interviewed reported consuming kratom in pills, capsules, powder, or tea.

Kratom is marketed in many forms, including as leaves, pills, capsules, powder, and tea. No common brands or suppliers of products reportedly containing kratom associated with this outbreak have been identified at this time. The FDA is working with state and local health officials and CDC to identify specific brand names or suppliers of products to learn more about the possible source and route of *Salmonella* contamination and will share more information as it becomes available.

HARM CAUSED BY DRUG USE REMAIN CONSIDERABLE

An estimated quarter of a billion people, or around 5 per cent of the global adult population, used drugs at least once in 2015. Even more worrisome is the fact that about 29.5 million of those drug users, or 0.6 per cent of the global adult population, suffer from drug use disorders. This means that their drug use is harmful to the point that they may experience drug dependence and require treatment. The magnitude of the harm caused by drug use is underlined by the estimated 28 million years of "healthy" life (disability-adjusted life years (DALYs)) lost worldwide in 2015 as a result of premature death and disability caused by drug use. [Source: www.unodc.org]



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FENTANYL

First synthesized in Belgium in the late 1950s, fentanyl, with an analgesic potency of about 80 times that of morphine, was introduced into medical practice in the 1960s as an intravenous anesthetic under the trade name of Sublimaze®. Thereafter; two other fentanyl analogues were introduced; alfentanil (Alfenta®), an ultra-short (5-10 minutes) acting analgesic, and sufentanil (Sufenta®), an exceptionally potent analgesic (5 to 10 times more potent than fentanyl) for use in heart surgery. Today, fentanyls are extensively used for anesthesia and analgesia. Duragesic®, for example, is a fentanyl transdermal patch used in chronic pain management, and Actiq® is a solid formulation of fentanyl citrate on a stick that dissolves slowly in the mouth for transmucosal absorption. Actiq® is intended for opiate-tolerant individuals and is effective in treating breakthrough pain in cancer patients. Carfentanil (Wildnil®) is an analogue of fentanyl with an analgesic potency 10,000 times that of morphine and is used in veterinary practice to immobilize certain large animals.

Illicit use of pharmaceutical fentanyls first appeared in the mid-1970s in the medical community and continues to be a problem in the United States. To date, over 12 different analogues of fentanyl have been produced clandestinely and identified in the U.S. drug traffic. The biological effects of the fentanyls are indistinguishable from those of heroin, with the exception that the fentanyls may be hundreds of times more potent. Fentanyls are most commonly used by intravenous administration, but like heroin, they may also be smoked or snorted. [Source: www.dea.gov]

GLUTETHIMIDE & METHAQUALONE

Glutethimide (Doriden®) was introduced in 1954 and methaqualone ("Quaalude" Sopor®) in 1965 as safe barbiturate substitutes. Experience demonstrated, however; that their addiction liability and the severity of withdrawal symptoms were similar to those of barbiturates. By 1972, "luding out," taking methaqualone with wine, was a popular college pastime. Excessive use leads to tolerance, dependence, and withdrawal symptoms similar to those of barbiturates. In the United States, the marketing of methaqualone pharmaceutical products stopped in 1984, and methaqualone was transferred to Schedule I of the CSA. In 1991, glutethimide was transferred into Schedule II in response to an upsurge in the prevalence of diversion, abuse, and overdose deaths. Today, there is little medical use of glutethimide in the United States.



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BAN SELLING ENERGY DRINKS TO ANYONE UNDER 16 [Source: www.abcnews.go.com]

Several chain supermarkets in the *United Kingdom* have begun implementing a voluntary ban on the sale of energy drinks to people under the age of 16.

Waitrose, a chain with more than 350 stores throughout the U.K., today began requiring proof of age for customers buying energy drinks containing more than 150 mg of caffeine per liter.

The amount of caffeine in one of the energy drinks, 150 mg, is roughly equivalent to two-and-a-half cups of instant coffee, if they are eight ounces each, [according to the Mayo Clinic](#).

It's unclear how much caffeine is safe or unsafe for teens or young children, since studies of its effects are not permitted in children.

[The American Academy of Pediatrics \(AAP\) advised parents in a 2011 report to keep kids and teens away from energy drinks over concerns about the high levels of caffeine.](#)

In 2011, there were 1,499 adolescents aged 12 to 17 who went to emergency rooms for an energy drink related emergencies, up from 1,145 adolescents in 2007, *according to the Centers for Disease Control and Protection*.

Side effects of excess caffeine consumption by children include anxiety, jitteriness, headache, fatigue, irritability, elevated blood pressure and heart palpitations, experts say. The effects can be serious if the child has an underlying heart issue.

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The information gathered for this newsletter is not necessarily the opinion of the County Crime/Drug Lab staff. The LabINFO Newsletter is solely available for informational purposes only.