ADLM Guidance Document on Laboratory Testing for Drugs of Misuse to Support the Emergency Department

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Guest: Dr. Christine Snozek is the director of point-of-care testing and co-director of chemistry at Mayo Clinic Arizona in Phoenix, Arizona.

Randye Kaye: Hello, and welcome to this edition of *JALM* Talk from *The Journal of Applied Laboratory Medicine*, a publication of the Association for Diagnostics & Laboratory Medicine. I'm your host, Randye Kaye.

The clinical laboratory plays a central role in evaluating patients in the emergency department for the presence of drugs of misuse. Over the past couple of decades, there have been major changes and drug use patterns and in laboratory technologies to detect those drugs. The Academy of Diagnostics and Laboratory Medicine assembled a writing group to evaluate the literature and to provide updated recommendations on these topics.

The January 2026 issue of *JALM* features the "ADLM Guidance Document on Laboratory Testing for Drugs of Misuse to Support the Emergency Department." The guidance document addresses important issues for clinical laboratories such as drug test menus, result interpretation cutoffs, and expected turnaround times. Importantly, the document emphasizes that laboratories should collaborate with their emergency departments, medical toxicologists, and poison control centers to optimize and update test menus to reflect local drug use patterns, ensure test methodologies and results meet clinical needs, and educate clinical staff regarding assay limitations and accurate test interpretation.

Today, we are joined by the guidance document's first author, Dr. Christine Snozek. Dr. Snozek is the director of point-of-care testing and co-director of chemistry at Mayo Clinic Arizona in Phoenix, Arizona. Dr. Snozek was previously associate director of the toxicology and drug monitoring lab at Mayo Clinic in Rochester, Minnesota. Welcome, Dr. Snozek.

Firstly, who is the primary target audience for this guidance document?

Christine Snozek: So, this document is an update to an older practice guideline that was published back in 2003. And obviously a lot has changed in the last 20 years regarding the technology, the

most clinically relevant drugs to test for. So this current document was written primarily for routine hospital laboratories in the United States that do urine drug testing to support their local emergency departments.

We focused in the document on the U.S. practice because there's such a huge difference in how various countries approach emergency care and what lab resources are available to support it. But in the U.S., we know that most labs supporting ED testing still use immunoassays either on automated analyzers or at the point-of-care, but there's also an evolving role for mass spectrometry in many institutions. We tried to address the most relevant concerns for routine clinical labs while still outlining guidance for when mass spec testing is most helpful.

The goal was really to focus in on the issues facing clinical labs in routine emergency settings, so we don't cover forensic testing, chain of custody, or postmortem testing.

Randye Kaye: All right. Thank you. Now, why does the guidance document refer to these compounds as "drugs of misuse?"

Christine Snozek: So historically, the most common phrase for compounds that can be associated with substance use disorders was "drugs of abuse," or "DOA." And honestly, these terms are still prevalent in the literature and in lab test menus. But as many areas of medicine have shifted focus to use more patient-centered terminology, it's been recognized that words like "abuse" and "addiction" can be stigmatizing to patients and their loved ones.

So DOA just isn't a great phrase to use anymore, and we wanted to avoid using it in this document. But unfortunately, there isn't really a consensus term to replace DOA. We even started an Artery thread trying to get input from ADLM members for preferred terminology but the comments just showed how different people's opinions are in this area.

So the document refers to drugs of misuse as somewhat of a compromise. It's maybe not a perfect term, but it has the advantage of paralleling the older DOA phrasing so that readers would clearly know what kind of drugs are included and it also matches what at least a handful of other scientific organizations are using to replace DOA.

Randye Kaye: All right. Thank you. Not to mention that DOA has another meaning that's wider.

Christine Snozek: Yes.

Randye Kaye: Yes. So what are the most important considerations in reporting drug testing for the emergency department?

Christine Snozek: So, the guidance document outlined several considerations for reporting but the underlying themes for all of them are clarity for the end user, whether that's a healthcare professional or a patient, and having regular conversations with the ED to see how available lab resources can best support their needs.

For example, one of the key ideas for labs using immunoassays is to clearly relate that results cannot be considered definitive. Many labs use phrasing such as "presumptive positive" or "unconfirmed positive" to get across the idea that there are issues like false positives and false negatives with essentially any immunoassay. But regardless of the exact wording used, it's up to the lab to make sure that providers or other folks interpreting labs understand what's meant.

Another consideration that's important for labs that offer more than one test, say an automated immunoassay and a mass spec-based confirmation, they need to distinguish the results using clear terminology.

Something like morphine by Q-TOF-MS is going to confuse end users, where options for morphine by immunoassay screen and morphine confirmation by mass spec might be easier to sort out. All labs, regardless of methodology, need to clearly report the cutoff being used. Many providers don't recognize that a negative result in toxicology doesn't guarantee a complete absence of a drug, it just means that any drug present is less than the cutoff for that assay. And to make things more complicated, cutoffs are often not standardized between labs. While there are some that are pretty consistent, like the 300 ng per ml cutoff for the opiates class immunoassays, other drugs like fentanyl have a range of available immunoassay cutoffs. And essentially all mass spec assays have lab-specific cutoffs that can vary widely between institutions.

These examples are part of the reason why we highly recommend providing interpretative comments for toxicology results. Whether it's recognizing specific metabolites to identify what parent drug was used or just making sense of nuances of false positives and reporting cutoffs, lab expertise can be easily relayed with each individual result in the form of a comment.

Randye Kaye: All right. Thank you. Now, you've pointed out, and the guidance document also points out, several issues associated with immunoassays. So why are they still so commonly used in emergency toxicology testing?

Christine Snozek: The biggest issues with immunoassays are false positives and false negatives. But the tests are fairly fast and fairly inexpensive, but these are pretty major limitations.

So false positives mean that an assay targeted to a compound or drug class can cross-react with other stuff, like amphetamines assays detecting blood pressure medications like labetalol. False negatives can come from different sources whether it's variable cross-reactivity within a drug class, not picking up metabolites well, or just rapid clearance of a drug with short half-life. All of these factors affect drug screening assays to different degrees. And many providers don't realize that cross-reactivity is unique to various manufacturers and the antibodies they use.

So, a provider might be familiar with false positives or false negatives from a previous job that just don't apply to the assay at their current hospital. This is an issue with drug testing literature as well. A published false positive might not apply to the assay your lab uses. This is one of the reasons we emphasize education and communication between the lab and ED staff.

Another issue with immunoassays is that there's a substantial lag time between appearance of a drug and availability of commercial assays. Fentanyl is an example of this. Even though it really started taking off in the U.S. around 2015, there weren't many assays out there at that time, and none were initially cleared for clinical use. You can still see the impact of that a decade later, since the number of labs offering fentanyl as a routine assay in their drug panels is still well lower than the number offering older drugs like the opiates class or cocaine. But the fact of it is, immunoassays are the fastest and easiest assays around and until mass spec is easier to work with and able to turn out results in the time that the emergency room needs, most labs are going to wind up sticking with immunoassays for the foreseeable future.

Randye Kaye: Finally, the document concludes by highlighting some key gaps in both analytical capabilities and provider education. Can you expand a little bit on these issues?

Christine Snozek: Sure. If there's one thing the document addresses in all areas, it's the need for ongoing education of clinical and laboratory staff. As we just discussed, immunoassays are commonly used but have some significant limitations that all staff need to be aware of. Providers need to understand the potential concerns around ordering drug testing in the first place, particularly in vulnerable populations like children and adolescents. The document describes several studies that highlight gaps in provider interpretation of drug test results. This is an area where any lab with the appropriate expertise can provide education to improve patient care. Another area

where any lab or any assay manufacturer can improve patient care is in actively reviewing their toxicology test offerings. Not even talking about the stuff that changes rapidly like emerging drugs or toxic adulterants. There are a lot of predefined tox panels that still include drugs like propoxyphene, which has been off the US market since 2010 and doesn't get used recreationally all that often.

Like I mentioned earlier, there are still a lot of labs that don't offer fentanyl testing even though it has dominated U.S. overdose tests for nearly a decade. If labs are going to offer the best possible care to patients and providers, they need to regularly review their test menus in light of drug use patterns and available toxicology tests.

The last thing I'll mention is that labs and assay manufacturers have a huge opportunity to collaborate in developing faster, more reliable assays that can provide meaningful toxicology results in a short enough time for the emergency department. There aren't many labs in the U.S. who've been able to implement broader spectrum mass spec-based screening for the ED, but those that have are leading the way in terms of identifying toxic drugs and adulterants in giving their emergency providers the information they need to respond meaningfully to a constantly changing drug environment. It's not easy to implement these kinds of assays but the only way to substantially improve ED drug testing is for mass spec manufacturers and labs to work together to develop and implement broader spectrum, flexible, and above all, fast but accurate tests for these compounds. As a practice, we need to move beyond immunoassays, but it's going to take a lot of collaboration between clinical labs and industry to make that happen.

Randye Kaye: All right. Thank you. Very interesting and important information. Thank you so much for joining us today.

Christine Snozek: Thank you.

Randye Kaye: That was Dr. Christine Snozek from Mayo Clinic Arizona, describing the *JALM* article "ADLM Guidance Document on Laboratory Testing for Drugs of Misuse to Support the Emergency Department." Thanks for tuning in to this episode of *JALM* Talk. See you next time and don't forget to submit something for us to talk about.