Key Summary of Conference Abstract

Presumptive Versus Definitive Drug Testing: What Are We Missing

Background

- From February 2020 through February 2021, drug overdose deaths (estimated at ~96,800) increased by 30% in the United States.[1] Thus, accurate detection of inappropriate drug use should be a healthcare priority.
- The 2 main classes of drug testing are presumptive and definitive.
  - Presumptive drug testing is a screen that is often conducted with point-of-care (POC) devices that are usually quick, qualitative, and inexpensive, but results require confirmation.[2]
  - Definitive drug testing quantifies specific substances (ie, drugs, metabolites) and is conducted with clinical laboratory methods that are highly sensitive. This class of testing can stand alone or be used to confirm presumptive test results.
- The American Academy of Pain Medicine recommends definitive testing because it is most accurate. However, some clinicians only use POC presumptive testing, possibly because most guidelines, while supporting drug testing, do not indicate which class of testing is most appropriate.
- **Objective:** Investigators evaluated how often true-positive drug test results would be misclassified if using only presumptive POC testing.

Methods

- Investigators analyzed deidentified results of direct-to-definitive urine drug testing (ie, not follow-up of presumptive testing) conducted at Quest Diagnostics during January 2020 through June 2021. Testing was performed by liquid chromatography with tandem mass spectrometry (LC-MS/MS).
  - A positive result was defined as a concentration greater than or equal to the cutoff value for the analyzed drug or metabolite.
- The frequency of results that presumptive drug testing would have misclassified as negative was determined.
  - A misclassified result was defined as a drug or metabolite concentration below the detection threshold (ie, manufacturer-defined cutoff value[3]) of a POC testing device.

Results

- Depending on the drug or metabolite, the study included 14,455 to 93,823 results that were positive by definitive drug testing.
- The frequencies of true-positive drug test results that would be misclassified using a POC testing device were as follows:
  - Fentanyl: 74% of 20,068
  - Marijuana: 29% of 67,872
  - Amphetamine: 17% of 45,047
  - Methamphetamine: 16% of 21,311
  - Oxycodone: 11% of 93,823
  - Cocaine: 7% of 14,455
  - Buprenorphine: 2% of 57,012

Conclusions

- Based on this study conducted at a large clinical reference laboratory, using only POC presumptive drug testing would frequently misclassify true-positive drug test results as negative, especially for fentanyl.
- Thus, definitive drug testing is critical as a stand-alone test or as a reflex test to confirm presumptive test results.

Poster presentation at PAINWeek Conference 2021

Authors
Jeffrey Gudin,[a,b] Jack Kain,[b] Les Edinboro,[b] Lee Hilborne[b]

Affiliations
[a]University of Miami, Miller School of Medicine, Miami, FL USA
[b]Quest Diagnostics, Secaucus, NJ USA

PAINWeek Conference, Las Vegas, NV, September 7-11

Webpage
https://www.eventscribe.net/2021/PAINWeek/agenda.asp?startdate=1/1/2001&enddate=1/1/2001&BCFO=&pfp=Browse%20by%20Day&mode=&tn=&cpf2=&cus2=&pta=

References
1. Ahmad FB, Rossen LM, Sutton P. Provisional drug overdose death counts. National Center for Health Statistics. Updated September 15, 2021. Accessed September 16, 2021. https://www.cdc.gov/nchs/nvss/vsrr/drug-overdose-data.htm
2. Instant Drug Test Cup/Card II (IDTC II). Package insert. CLIAwaived Inc; revision 3. Accessed October 6, 2021. https://cliawaived.com/amfile/file/download/file/1391/product/6318/
3. DrugConfirm urine drug test kit. Confirm Biosciences. Accessed September 16, 2021. DrugConfirm Urine Drug Test Kit (confirmbiosciences.com) https://www.confirmbiosciences.com/products/urine-drug-test-cups/drugconfirm-drug-test-cup/