Simplified Workflow for Whole Blood Testing in Medicolegal Death and Impaired Driving Cases

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BACKGROUND AND SIGNIFICANCE

- Labs often lack time or resources to validate new methods
- New policies and standards create technical and administrative challenges for labs as they work to stay compliant with ISO17025 accreditation requirements and keep pace with the ever changing landscape of analytical toxicology
- Outsourcing of case work is costly and unsustainable
- Updated technology and methods are required to meet new Academy Standards Board (ASB) testing requirements for medicolegal death and driving impairment investigations
- Laboratories often use multiple analytical testing procedures that are not harmonized
- Out of the box workflow solutions and wellvalidated methods enable labs to quickly implement and adopt new testing procedures to improve throughput, data quality and compliance with new standards



f my immediate family, has a financial interest to disclose. Authors are employees of PinPoint Testing or Phenomenex and their products will be mentioned



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GOAL

• Use standard liquid chromatography tandem mass spectrometry (LC-MS/MS) instrumentation and supplies to cross validate two orthogonal stationary phases for medicolegal death and driving impairment investigations • Streamline analytical procedures by using identical mobile phases and gradients across both LC columns • Optimize and evaluate the suitability of commercially available supported liquid extraction (SLE) phases for low sample volume extractions (100 μ L)

 Meet ASB Standard 036 LC-MS/MS method validation criteria established for accuracy, precision, uncertainty, calibration models, reportable range, sensitivity, specificity, carryover, interference, matrix effect and analyte stability

1. Sample Aliquoting • Screening and confirmation on a single 96-well plate **2. Sample Preparation** SLE-DE Extraction **Reconstitution Solution 3. Sample Analysis** • LC-MS/MS analysis with C18 and pher phases and gradie PINPOINT TESTING ToxBox[®] Mobile nase concentrat 4. Sample Results University of Arkansas for Medical Sciences screening and confirmation review **5. Sample Reportin** Normal technical and • phenomenex. administrative re

protocol

RESULTS



WORKFLOW



RESULTS & DISCUSSION

The new validated analytical procedure provides high data quality and allows laboratories