FDA Regulation of Drugs of Abuse (DoA) tests

Drug Testing Advisory Board (DTAB) Meeting
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FDA Regulation of DoA Tests

• DoA regulation updates
  – What is provided to provide to FDA?
  – When is it provided?

• Oral Fluid Drugs of Abuse Tests
  – What’s different than urine
    • Collection and Cutoffs

• Point of Care considerations for DoA devices
  – Intended user/Intended use environment
FDA Regulation of DoA Tests

- Most DoA tests are classified under a moderate risk regulation (Class II) and require 510(k) clearance prior to marketing, including
  - Prescription use
    - Central lab tests, drug panel tests
    - Point of Care use- ER, patient bedside
  - Over the Counter use*
    *a topic for another time

Information that supported 510(k) cleared assays is publicly available!

*more later…
Updates to 510(k) requirements

Updates to the Federal Register (finalized 12/30/2019) included updates to 510(k) requirements for many DoA assays,

Medical Devices; Exemptions From Premarket Notification for Class I and Class II Devices:

“…not exempt if it is intended for any use other than employment or insurance testing or is intended for Federal drug testing programs. The device is exempt from the premarket notification procedures in subpart E of part 807 of this chapter subject to the limitations in § 862.9, provided the test system is intended for employment and insurance testing and includes a statement in the labeling that the device is intended solely for use in employment and insurance testing, and does not include devices intended for Federal drug testing programs (e.g., programs run by the Substance Abuse and Mental Health Services Administration (SAMHSA), the Department of Transportation (DOT), and the U.S. military).”
Updates to 510(k) requirements

Updates to the Federal Register (finalized 12/30/2019) included updates to 510(k) requirements for many DoA assays:

Medical Devices; Exemptions From Premarket Notification for Class I and Class II Devices

What does this mean?

• Intended only for Employment and Insurance Testing?
  – Not Federal testing (DOT, SAMHSA, etc.)
• Does it not exceed limitations of exemption (21 CFR § 862.9)?
• Device is registered https://www.fda.gov/medical-devices/how-study-and-market-your-device/device-registration-and-listing
Updates to 510(k) requirements

Then device is not 510(k) exempt, and device manufacturer should:

- Obtain premarket 510(k) clearance

- What goes into a 510(k) submission for DoA assays?

Intended for

<table>
<thead>
<tr>
<th>IVD use beyond non-federal, E &amp; I testing?</th>
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or

<table>
<thead>
<tr>
<th>Non-federal, E &amp; I testing that exceeds limitations of exemption (21 CFR § 862.9)?</th>
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or

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<th>Intended for</th>
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Public resources: 510(k) database
https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm
Public resources: 510(k) database

<table>
<thead>
<tr>
<th>Device Name</th>
<th>Applicant</th>
<th>510(K) Number</th>
<th>Decision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safria Methamphetamine Oral Fluid Enzyme Immunoassay</td>
<td>Immunalysis Corporation</td>
<td>K203647</td>
<td>12/22/2021</td>
</tr>
<tr>
<td>Psychemedics Homogeneous Enzyme Immunoassay For Amphetamines In Hair</td>
<td>Psychemedics Corporation</td>
<td>K210212</td>
<td>12/15/2021</td>
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<tr>
<td>Lin-Zhi International, Inc. (Lzj) Methamphetamine Enzyme Immunoassay For Pictus Analyzers</td>
<td>Diatron Group</td>
<td>K201442</td>
<td>07/31/2020</td>
</tr>
<tr>
<td>Bio-Venture Rapid Amphetamine Test Cassette For Otc Use, Bio-Venture Rapid Oxazepam Test Cassette For Otc Use, Bio-Venture Rapid Cocaine Test Cassette For Otc Use, Bio-Venture Rapid Methamphetamine Test Cassette For Otc Use, Bio-Venture Rapid Morphine Test Cassette For Otc Use, Bio-Venture Rapid Ma</td>
<td>Shanghai Venture Bio-Tech CO., Ltd.</td>
<td>K180878</td>
<td>12/17/2018</td>
</tr>
<tr>
<td>Assuretech Methamphetamine Tests (Strip, Panel Dip, Quick Cup, Turn-Key Split Cup), Assuretech Phencyclidine Tests (Strip, Panel Dip, Quick Cup, Turn-Key Split Cup), Assuretech Marijuana Tests (Strip, Panel Dip, Quick Cup, Turn-Key Split Cup)</td>
<td>ASSURE TECH (HANGZHOU) CO., LTD.</td>
<td>K161044</td>
<td>07/06/2016</td>
</tr>
<tr>
<td>Wondfo Amphetamine Urine Test Amp 500 (Cup, Dipcard), Wondfo Cocaine Urine Test Cass 150 (Cup, Dipcard)</td>
<td></td>
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</tr>
</tbody>
</table>
Public Resources: 510(k) Decision Summaries

510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION
DECISION SUMMARY
ASSAY ONLY TEMPLATE

A. 510(k) Number:

k161214

B. Purpose for Submission:

New Device

C. Measurand:

Amphetamine, Cocaine and Methamphetamine

D. Type of Test:

Qualitative Lateral Flow chromatographic immunoassay
Oral Fluid DoA Tests

• Many Drugs,
  – Amphetamines, barbiturates, benzodiazepines, THC, cocaine, cotinine, methadone, methamphetamine, opiates (including oxycodone), PCP

• Individual assays and drug panels
• Central lab tests and point of care
Oral Fluid DoA Tests

• Advantages:
  – Easy to collect sample, easy to observe collection

• Concerns:
  – Biocompatibility (safety)
  – Performance (is the device accurate)
  – Clinical Validity (what do results mean?)
DoA Oral Fluid Tests: Biocompatibility

- Mucosal membrane contact
- FDA recognized standard: ISO 10993-1
- FDA has guidance on how to apply standard: “Biological evaluation of medical devices- Part 1: Evaluation and testing within a risk management process”
DoA Oral Fluid Tests: Performance

- Poor performance
- Good performance
DoA Oral Fluid Tests: Performance

- Sample collection
  - Usability: can intended user provide sample?
    * Volume studies (from intended use population)
    * Collection time studies (from intended use population)
DoA Oral Fluid Tests: Performance

• Sample collection
  – Accuracy (recovery) - is drug ‘lost’ after collection (collection tube absorption, etc.)?
    * Spiked samples (+/-25%, +/-50% proposed cutoff)
      o Test all claimed storage and transport conditions
      o Test any dilution extraction steps
    
    * Native samples:
      o Samples with concentrations below and above cutoff (including samples within 50% of cutoff)
DoA Oral Fluid Tests: Performance

• Interferent testing:
  – Will substances that may be present in oral fluid interfere with results:
    * Food
    * Tobacco
    * Caffeine
    * Blood
    * Mouthwash
    * Etc.
Point of Care DoA Oral Fluid Tests: Performance

• Precision testing
  – Intended use sites (3) and intended operators (HCPs)
  – (spiked) samples around cutoff (-100%, -75%, -50%, -25%,
    cutoff, +25%, +50%, +75%, +100%)

• Accuracy testing
  – Intended use sites (3) and intended operators (HCPs)
  – Native, intended use samples (with concentrations below and
    above cutoff)

• Read time studies (if read over a range)
  – (spiked) samples around cutoff (+/-50%)
  – read before, within, and beyond recommended read time
DoA Oral Fluid Tests: Cutoff

- Clinical validity: do results correlate with recent drug use
  - Intended use- detection of recent drug use- should be supported

- Supported either by:
  - Established cutoff concentrations
    * Citing a device FDA has previously cleared in oral fluid with the cutoff
  - New cutoff concentrations
    * Information to support clinically acceptable balance of false positive and false negative results
    * Information to provide adequate instructions for use (detection window, population differences, etc.)
Questions?

Thank you!