



Laboratory Drug Surveillance in Minnesota – Update

Jason Peterson – Chemical Threat Preparedness Coordinator
12/13/2021

PROTECTING, MAINTAINING AND IMPROVING THE HEALTH OF ALL MINNESOTANS

MNDOSA

- Determine the burden of overdoses/substance abuse encounters at hospitals
 - Currently 8 Hospitals in the NE portion of the state
- Patients are identified by overdose clusters and/or unusual, atypical clinical presentations
- Clinical samples are tested to identify substances exposures
 - Helps to inform clinicians and LE
 - Alert us to newly detected drugs as they enter the district

HIDTA Surveillance

- Testing of physical substances and clinical samples (when available) from overdose encounters
 - Partnered with three Law Enforcement Agencies
 - Twin Cities PD
 - Northwest Metro PD
 - South Metro PD
- Substances are of interest to LE but not part of active investigation
 - Have done preliminary ID for LE to help aid in investigation
 - Tracking blue M30 pill composition from multiple areas

New Methodology

- High-Resolution Mass Spectrometry (HRMS)
 - Ability to detect almost 1000 different drug compounds in a single method.
 - Additional suspect screening library for roughly 800 different compounds. (Haven't used this yet)
 - Can back-mine data when new analytes become available.
 - Haven't done it yet, but we are capable of it.

Previous Methodology

- Targeted semi-quantitative analysis with qualitative reporting; LC-QQQ
 - Three sample extractions and three analytical methods for each sample
 - Opioids (fentanyl and fentanyl-analogs) – 40 compounds
 - Designer Drugs (e.g., synthetic cannabinoids, cathinone's) – 93 compounds
 - Multi-Drug Panel (e.g., stimulants, benzos, barbiturates, etc.) – 138 compounds

MNDOSA Update

Clinical Sample Analysis

MNDOSA Data – Targeted Method

2020-2021 Data – 212 Specimens Analyzed

- 120 Different analytes were detected
- Subjects averaged 6 drug analytes in blood and 11 drug analytes in urine
- 70% of specimens contained Methamphetamine
- Identified Synthetic Cannabinoids and Cathinones
 - JWH-018 in two samples
 - N-Ethylpentylone in one sample
- 40% of all specimens contained Fentanyl
 - Identified 9 different Fentanyl analogues
 - Para-Fluoro Fentanyl found in 4 samples
 - Sample Date of first ID: 12/20/20

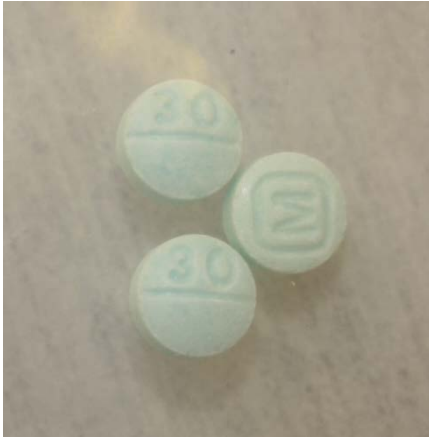
2021 Data – 103 Specimens Analyzed

- 144 Different analytes were detected
 - Subjects averaged 10 drug analytes in blood and 16 drug analytes in urine
 - Increase potentially do to increased detection of metabolites
 - 67% of all specimens contained Methamphetamine
 - Identified Methylone in one sample
 - Identified 4-hydroxy DMT (Psilocybin metabolite) in two individuals
- 38% of all specimens contained Fentanyl
 - Identified 5 different Fentanyl analogues
 - Detected 2-Methyl AP-237 in three samples from two subjects
 - Para-Fluoro Fentanyl found in 11 samples
 - Identified Metonitazine in one sample

HIDTA Drug Surveillance

Product Testing

HIDTA Case Study – M 30 Pills



- We loosely tracked M Box 30 pill composition for the past year.
 - Tested pills from 4 different events from 10/2020 – 09/2021
 - All versions contained Fentanyl, 4-ANPP and Acetaminophen.
 - Pills on the left also contained Metamizole which is a common adulterant from production in Mexico
 - Pills on the right were more green than blue, had a less prominent imprint and contained Para-Fluoro Fentanyl and Tramadol in addition to Fentanyl.

HIDTA Case Study – Designer Benzodiazepines



- Received 6 unknown clear liquids from Law Enforcement
- Detected a combination of designer benzodiazepines in every bottle
- Bromazolam, Clonazepam, Clomazepam, Etizolam, Flubromazepam, Flubromazolam, Metizolam
- Two bottles also contained Methamphetamine
- Two bottles also contained the synthetic cannabinoid: MDMB-4en-PINACA
- We did not quantitate purity of the various drug compounds.
 - Bottles may have been used multiple times for solution storage

HIDTA Case Study – Unknown Pills



- Received multiple pressed pills from south metro PD.
 - All pills tested
 - Found to contain cocaine with small amount of methamphetamine
- LE suspected MDMA, had not seen pills like this before.

Successes and Challenges

- New Methodology simplifies testing
 - Increase ability to detect more compounds and/or metabolites
- MNDOSA project is still challenged with onboarding new sites
 - Want to expand to other geographical locations
 - Long term funding is a concern
- HIDTA surveillance has identified multiple substances of interest for LE
 - Would like to involve a PD outside of the metro area

Thank you.

Jason Peterson

Chemical Threat Preparedness Coordinator

Jason.d.peterson@state.mn.us

651-201-5356