Drug Threats in the United States: 2019 Update

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DRUG ENFORCEMENT ADMINISTRATION
Objectives

1. Overview of the DEA Emerging Trends & Reference Materials Programs
2. Emerging Threat Report data for CY2018
   1. Synthetic Cannabinoids
   2. Synthetic Cathinones
   3. Fentanyl, Fentanyl-related compounds and new synthetic opioids
   4. Other NPS classes
3. Seized drug composition and mixtures containing fentanyl
Emerging Trends and Reference Material Programs

1. Analysis of domestic and foreign drug seizures
2. Research and method development for identification and quantitation
3. *Authentication* of reference materials
4. Structural Elucidation of unknown drugs
5. Authors SWGDRUG monographs
6. Monitors past/current trends to predict future needs
7. Publishes Emerging Threat Report
Emerging Threats

New Psychoactive Substances (NPS)
- A new narcotic or psychotropic drug, in pure form or in preparation, that is not controlled by the UN drug conventions, but which may pose a public health threat

- Synthetic Cannabinoids
- Substituted Cathinones
- Hallucinogens
- Synthetic Opioids
- Benzodiazepines
- Plant-Derived Highs
Forensic Chemistry Analysis

**WHAT IT IS**

Seized drug samples

Parent drug

**WHAT IT IS NOT**

Biological samples

Toxicological samples

Metabolites
Data Sources

DEA Reporting
- Laboratory Information Management System (LIMS)
- Seized: 01/01/2018 – 12/31/2018, Analyzed by 12/31/2018

Considerations
- Backlogs
- Availability of reference materials
- Excludes analyses performed at DEA Special Testing and Research Laboratory
Synthetic Cannabinoids Seized and Identified by DEA between January 1, 2018 to December 31, 2018

- 526 synthetic cannabinoid identifications
- 5F-MDMB-PINACA and FUB-AMB was the most reported synthetic cannabinoids (64%)
- 25 different substances seized and identified
- 7 substances identified for the first time

Notes:
1) This data was compiled from analytical results from the DEA laboratory system. It encompasses exhibits seized 01/01/2018 through 12/31/2018 that were analyzed by 12/31/2018. The data was retrieved on 01/11/2019.
DRUG ENFORCEMENT ADMINISTRATION
SPECIAL TESTING AND RESEARCH LABORATORY
EMERGING TRENDS PROGRAM

Synthetic Cathinones Seized and Identified by DEA between January 1, 2018 to December 31, 2018

- 327 synthetic cathinone identifications
- N-Ethylpentylole was the most reported cathinone (62%)
- 22 different substances seized and identified
- 5 cathinones identified for the first time

Notes:
1) This data was compiled from analytical results from the DEA laboratory system. It encompasses exhibits seized 01/01/2018 through 12/31/2018 that were analyzed by 12/31/2018. The data was retrieved on 01/11/2019
Fentanyl and Synthetic Opioids
Pharmaceutical Fentanyl
Furanyl fentanyl

Acetyl fentanyl

Valeryl fentanyl

Fentanyl
Packaging
Tablets

Fentanyl
New Jersey

AB-FUBINACA/
etizolam/fentanyl
New York

Fentanyl

acetylfentanyl
New Jersey
Other Forms

- Fentanyl nasal spray
- Fentanyl:
  - Texas
  - California
- Acetylfentanyl:
  - Nebraska
Synthetic Opioids Seized in 2015

Notes:
1) This data was compiled from analytical results from the DEA laboratory system. It encompasses exhibits seized 01/01/2015 through 12/31/2015 that were analyzed by 12/31/2016. The data was retrieved on 01/04/2017.
Fentanyl-type substances

Acetyl fentanyl

Fentanyl

Butyryl fentanyl

Valeryl fentanyl (Pentanoyl fentanyl)
Opioid & “Fentanyl-like”
CY 2016 Identifications

- 15 different substances seized and identified in 2016
- ~60% of these substances were seized and reported for the first time in 2016

Notes:
1) This data was compiled from analytical results from the DEA laboratory system. It encompasses exhibits seized 01/01/2016 through 12/31/2016 that were analyzed by 12/31/2016. The data was retrieved on 01/04/2017.
Fentanyl-type substances

- Fentanyl
- 3-Methylfentanyl
- β-Hydroxythiofentanyl
- 4-Fluoroiso-butyrfentanyl
- Carfentanil
Synthetic Opioids Seized and Identified by DEA in CY2018

- ~27% increase in identifications from CY2017
- 26 different substances seized and identified
- 7 substances seized and identified for the first time

Notes:
1) This data was compiled from analytical results from the DEA laboratory system. It encompasses exhibits seized 01/01/2018 through 12/31/2018 that were analyzed by 12/31/2018. The data was retrieved on 01/11/2019.
### Hallucinogens

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2C-I</td>
<td>1</td>
</tr>
<tr>
<td>2C</td>
<td>1</td>
</tr>
<tr>
<td>25C-NBOMe</td>
<td>1</td>
</tr>
<tr>
<td>25B-NBOMe</td>
<td>1</td>
</tr>
<tr>
<td>25i-NBOMe</td>
<td>2</td>
</tr>
<tr>
<td>2C-B</td>
<td>4</td>
</tr>
</tbody>
</table>

### Benzodiazepines

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flualprazolam</td>
<td>2</td>
</tr>
<tr>
<td>Flubromazolam</td>
<td>4</td>
</tr>
<tr>
<td>Etizolam</td>
<td>35</td>
</tr>
</tbody>
</table>

### Piperazines

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBZP</td>
<td>3</td>
</tr>
<tr>
<td>pFPP</td>
<td>4</td>
</tr>
<tr>
<td>BZP</td>
<td>6</td>
</tr>
<tr>
<td>TFMPP</td>
<td>9</td>
</tr>
</tbody>
</table>

### Other

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance Unconfirmed</td>
<td>92</td>
</tr>
<tr>
<td>Mitragynine</td>
<td>12</td>
</tr>
<tr>
<td>3-MeO-PCP</td>
<td>7</td>
</tr>
<tr>
<td>2F-Deschloroketamine</td>
<td>3</td>
</tr>
<tr>
<td>2-Oxo-PCE</td>
<td>3</td>
</tr>
<tr>
<td>MMMP</td>
<td>3</td>
</tr>
<tr>
<td>4-Fluoroamphetamine</td>
<td>2</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
</tr>
<tr>
<td>Yohimbine</td>
<td>2</td>
</tr>
<tr>
<td>3-Fluorophenmetrazine</td>
<td>1</td>
</tr>
<tr>
<td>5-MeO-DALT</td>
<td>1</td>
</tr>
<tr>
<td>5-MeO-DiPT</td>
<td>1</td>
</tr>
<tr>
<td>DMAA</td>
<td>1</td>
</tr>
</tbody>
</table>

**Notes:**

1) This data was compiled from analytical results from the DEA laboratory system. It encompasses exhibits seized 01/01/2018 through 12/31/2018 that were analyzed by 12/31/2018. The data was retrieved on 01/11/2019.
Fentanyl

A LOOK AT SEIZED DRUG MIXTURES
## Mixtures Containing Fentanyl

<table>
<thead>
<tr>
<th>Substance</th>
<th># of Identifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin</td>
<td>4228</td>
</tr>
<tr>
<td>Cocaine</td>
<td>412</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>208</td>
</tr>
</tbody>
</table>

Fentanyl with

- Heroin
- Cocaine
- Methamphetamine

Each identification was made in the same seized material
- May have also contained other substances (controlled or non-controlled)

Note: This data was acquired from exhibits analyzed by the DEA Laboratory System.
<table>
<thead>
<tr>
<th>Substances Identified</th>
<th>Weight</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl Heroin</td>
<td>7986g powder</td>
<td>South Central Region</td>
</tr>
<tr>
<td>Fentanyl Heroin (2.5%)</td>
<td>6.9g powder</td>
<td>South Central Region</td>
</tr>
<tr>
<td>Heroin (5.4%) Fentanyl (4.5%)</td>
<td>1.9g powder</td>
<td>Mid-Atlantic Region</td>
</tr>
<tr>
<td>Heroin (18%) Fentanyl (3.7%)</td>
<td>49g powder</td>
<td>North Central Region</td>
</tr>
<tr>
<td>Heroin (21%) Fentanyl (2%) Diphenhydramine</td>
<td>89g powder</td>
<td>North Central Region</td>
</tr>
<tr>
<td>Heroin Fentanyl Procaine</td>
<td>495g powder</td>
<td>Northeastern Region</td>
</tr>
<tr>
<td>Heroin Fentanyl Tramadol Quinine</td>
<td>0.5g powder</td>
<td>Northeastern Region</td>
</tr>
<tr>
<td>Heroin (3.9%) Fentanyl Tramadol Caffeine Procaine Quinine</td>
<td>998g (brick)</td>
<td>Northeastern Region</td>
</tr>
</tbody>
</table>

**Heroin and Fentanyl Mixtures**

Note: This data was acquired from exhibits analyzed by the DEA Laboratory System between 9/2/2018 through 1/5/2019.
<table>
<thead>
<tr>
<th>Substances Identified</th>
<th>Weight</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl Cocaine</td>
<td>0.86g powder</td>
<td>Southeastern Region</td>
</tr>
<tr>
<td>Heroin Fentanyl Cocaine Caffeine Quinine Ibuprofen Lidocaine</td>
<td>Residue (paraphernalia)</td>
<td>Mid-Atlantic Region</td>
</tr>
<tr>
<td>Heroin Fentanyl Cocaine Quinine Salicylic Acid Caffeine</td>
<td>4.6g powder</td>
<td>Southeastern Region</td>
</tr>
<tr>
<td>Cocaine Hydrochloride Fentanyl Phenacetin</td>
<td>1996g powder</td>
<td>Southwestern Region</td>
</tr>
</tbody>
</table>

**Cocaine and Fentanyl Mixtures**

Note: This data was acquired from exhibits analyzed by the DEA Laboratory System between 9/2/2018 through 1/5/2019.
<table>
<thead>
<tr>
<th>Substances Identified</th>
<th>Weight</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin, Fentanyl, Methamphetamine, Xylazine, Quinine, Caffeine, Diphenhydramine</td>
<td>3.3g powder</td>
<td>North Central Region</td>
</tr>
<tr>
<td>Cocaine, Methamphetamine, 06-monoacetylmorphine, Fentanyl, Noscapine, PTHIT</td>
<td>Residue (scale)</td>
<td>Southwestern Region</td>
</tr>
<tr>
<td>Fentanyl (4.6%), Tramadol, Ketamine, Methamphetamine, Noscapine, Dipyrone</td>
<td>513g powder</td>
<td>Southwestern Region</td>
</tr>
<tr>
<td>Fentanyl (0.8%), Heroin, Methamphetamine, Acetaminophen, Caffeine, Lidocaine</td>
<td>5.2g tablets</td>
<td>Northeastern Region</td>
</tr>
</tbody>
</table>

**Methamphetamine and Fentanyl Mixtures**

Note: This data was acquired from exhibits analyzed by the DEA Laboratory System between 9/2/2018 through 1/5/2019.
<table>
<thead>
<tr>
<th>Substances Identified</th>
<th>Weight</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocaine, Heroin, 2-Furanyl fentanyl, Fentanyl, Caffeine, Quinine, Benzocaine, PTHIT</td>
<td>45.2g powder</td>
<td>Southeastern Region</td>
</tr>
<tr>
<td>Fentanyl (1.2%), Heroin, 5F-MDMB-PINACA, Cyclopropyl fentanyl, Cocaine, Lidocaine,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caffeine</td>
<td>28g powder</td>
<td>Southeastern Region</td>
</tr>
<tr>
<td>Heroin (1.5%), 4-Chloroethcathinone, U-47700, 2-Furanyl fentanyl, Quinine, Diphenhydramine, Etizolam</td>
<td>49g powder</td>
<td>North Central Region</td>
</tr>
</tbody>
</table>

**Complex Fentanyl Mixtures**

Note: This data was acquired from exhibits analyzed by the DEA Laboratory System between 9/2/2018 through 1/5/2019.
Is marijuana being mixed or laced with fentanyl?

Few identifications of THC and fentanyl
• Majority were residue
  (i.e. scales, paraphernalia)
• None were described as plant material
• No indications of marijuana and fentanyl identified in the data set reviewed

Fentanyl and Marijuana

Note: This data was acquired from exhibits analyzed by the DEA Laboratory System.
Laboratory Resources: Update

Searchable Libraries:
IR Library Version 2.0 – Updated 2/8/2019
MS Library Version 2.0 – Updated 1/31/19

Drug Monographs
Regularly updated
Summary

• 22 NPS were identified for the first time in 2018 which equates to approximately one new substance approximately every two and a half weeks.
• Approximately 33% of the synthetic opioids identified were seized and identified for the first time in 2018.
• Seized drug analyses can be a useful tool in understanding complex drug mixtures and their relationship to toxicological results.
Thank You!

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Special Testing and Research Laboratory
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