DEA TOX

DRUG ENFORCEMENT ADMINISTRATION

TOXICOLOGY TESTING PROGRAM

QUARTERLY REPORT

4th Quarter – 2020

U.S. Department of Justice
Drug Enforcement Administration
Diversion Control Division
Drug and Chemical Evaluation Section

Contents

Introduction

The Drug Enforcement Administration's Toxicology Testing Program (DEA TOX) began in May 2019 as a surveillance program aimed at detecting new psychoactive substances within the United States. In response to the ongoing synthetic drug epidemic, the Drug Enforcement Administration (DEA) awarded a contract with the University of California at San Francisco (UCSF) to analyze biological samples generated from overdose victims of synthetic drugs.

In many cases, it can be difficult to ascertain the specific substance responsible for the overdose. The goal of DEA TOX is to connect symptom causation to the abuse of newly emerging synthetic drugs (e.g. synthetic cannabinoids, synthetic cathinones, fentanyl-related substances, other hallucinogens, etc.).

DEA has reached out to local health departments, law enforcement partners, poison centers, drug court laboratories, hospitals and other medical facilities to offer testing of leftover or previously collected samples for analysis of synthetic drugs. DEA TOX is interested in patients thought to have ingested a synthetic drug, where the traditional drug screen has produced little or no viable options to explain the symptoms exhibited by the patient (alcohol and THC are exempted). DEA TOX may approve leftover un-used biological samples (or biological samples) for testing from a medical facility or law enforcement partner only.

Once DEA TOX is contacted (**DEATOX@USDOJ.GOV**) and upon approval by DEA of the request for testing of specific samples, the originating laboratory is invited to send their samples to the Clinical Toxicology and Environmental Biomonitoring (CTEB) Laboratory at UCSF. DEA covers the full cost of analysis for each sample approved for testing. Using liquid chromatography- quadrupole time-of-flight mass spectrometry, synthetic drugs identified within the samples are confirmed and quantified. The CTEB laboratory currently maintains a comprehensive drug library consisting of 809 new psychoactive substances (NPS), 167 traditional illicit drugs (TID), and 92 prescription or over the counter (OTC) drugs.

This publication presents the results of cases analyzed and completed by the CTEB laboratory from October 1, 2020 through December 31, 2020.

For more information, please visit:
https://www.deadiversion.usdoj.gov/dea_tox/index.html

Summary

Between October 1, 2020 and December 31, 2020, biological samples from 79 cases originating from three states namely Alabama (60), California (10), and Oregon (9) were submitted to DEA TOX. These samples were analyzed for NPS, TID, and prescription or OTC drugs.

DEA TOX identified and confirmed a total of 245 drugs and metabolites that consisted of 120 NPS detections, 42 TID detections, and 83 prescription or OTC drug detections during this reporting period (Fig. 1A). While some drugs identified could be placed in more than one category, for purposes of this report and for consistency, DEA TOX placed such substances in a single category only. Substances that are not approved by the Food and Drug Administration for medical use within the U.S. are considered NPS.

A breakdown of the 245 total drug and metabolite confirmations demonstrated 69 different drugs, which consisted of 30 NPS, 9 TID, and 30 prescription and OTC drugs (Fig. 1B).

Fig. 1A Detection frequency

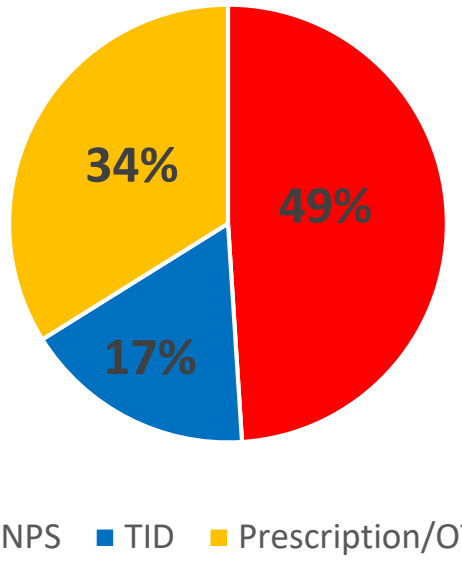
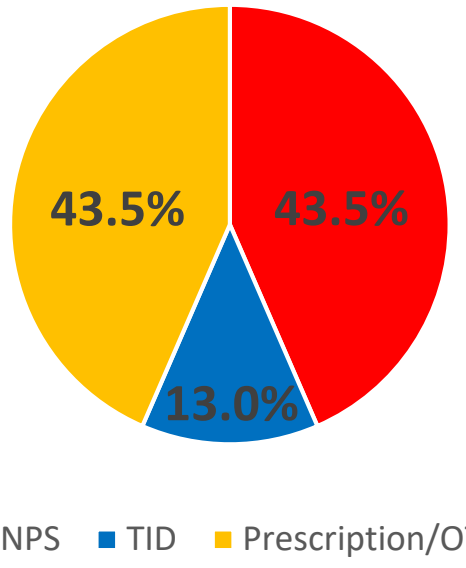
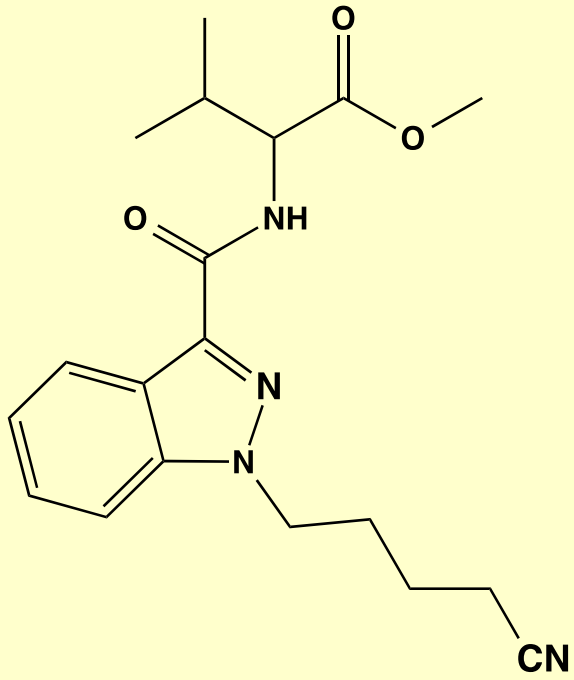


Fig. 1B Types of drugs detected



NPS Discovered via DEA TOX

4-CN-AMB-BUTINACA



https://www.deadiversion.usdoj.gov/dea_tox/4CN-AMB-BUTINACA.pdf

New Psychoactive Substances

DEA TOX confirmed 120 detections comprising of 30 NPS (Table 1) from 10 different classes of drugs (Figure 2A) in the 4th quarter of 2020. The total encounters for each NPS class are summarized in Figure 2B.

Figure 2A. Number of Substances Identified for Each NPS Class

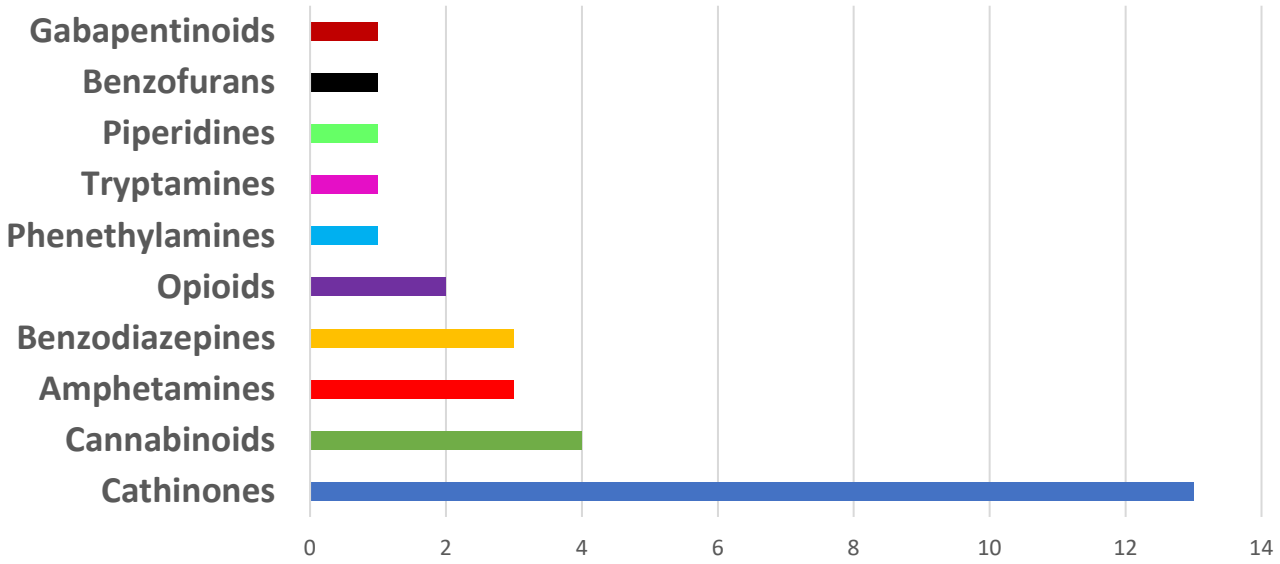


Figure 2B. Total Encounters for Each NPS Class

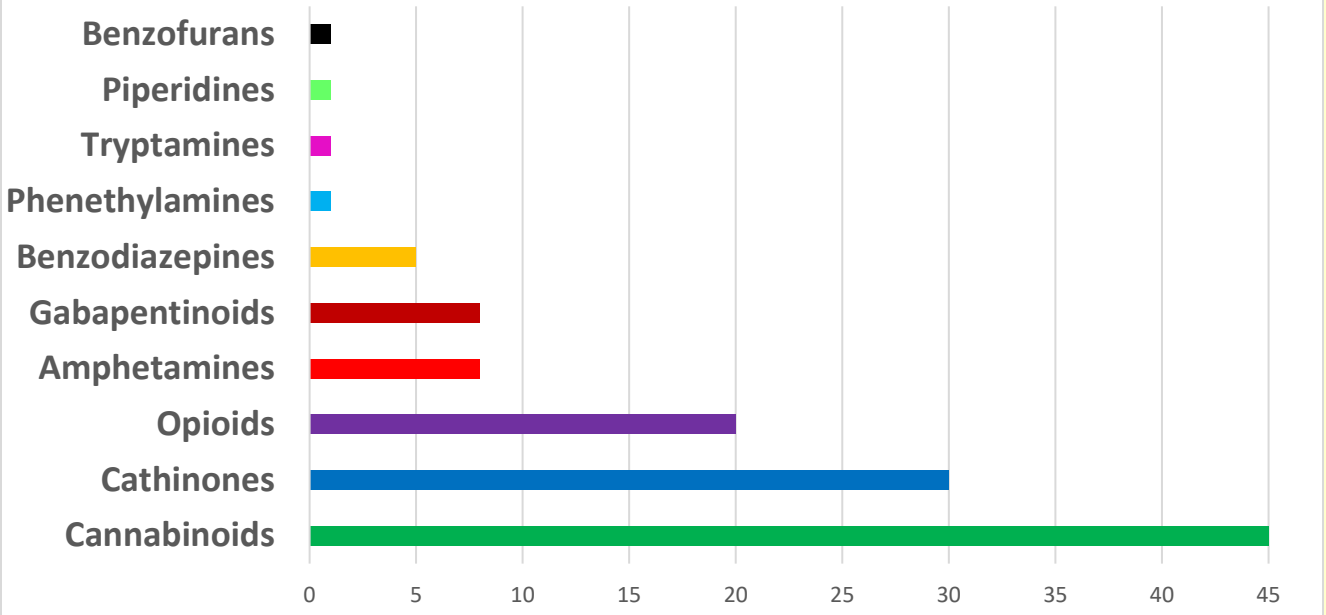


Table 1. NPS detected – 4th Quarter 2020*

Cathinones	N-Butyl pentylone (5) Pentedrone (5) N-Ethylbuphedrone (NEB) (4) Mephedrone (4) MDPHP (2) MDPV (2) N-Ethyl hexylone (2) NRG-3 (2) 4-Methoxy Dimethylcathinone (1) Alpha-PVP (1) Butylone (1) Methylone (1) N,N- Dimethylcathinone (1)
Cannabinoids	4-CN-AMB-BUTINACA (40) ADB-PINACA (2) 4CN-MDMB-BUTINACA (1) AB-PINACA (1)
Amphetamines	p-Methoxymethamphetamine (3) p-Methoxyamphetamine (3) Ethylamphetamine (2)
Benzodiazepines	Flualprazolam (3) Etizolam (1) Deschloroetizolam (1)
Opioids	Tianeptine§ (19) Mitragynine (1)
Phenethylamine	2C-I (1)
Tryptamine	Alpha-methyltryptamine (1)
Piperidine	Ethylphenidate (1)
Benzofuran	5-APDB (1)
Gabapentinoid	Phenibut (8)

* Numbers in parentheses refer to the total number of cases positive for the respective substance.

§ Tianeptine, a tricyclic antidepressant, is not approved by the Food and Drug Administration for medical use within the U.S. Tianeptine also has been shown to be a mu-opioid receptor agonist and it is currently being abused in high dosages for its opioidergic activity.

Traditional Illicit Drugs

DEA TOX confirmed 42 detections comprising of nine TIDs (Table 2) in the 4th quarter of 2020.

Table 2. TID detected – 4th Quarter 2020*

Amphetamines	Methamphetamine (11) MDA (3) Amphetamine (2) MDMA (2)
Opioids	Fentanyl (9) Acetylcodeine (1) Morphine (1)
Cocaine	Cocaine (12)
Arylcyclohexylamine	Ketamine (1)

* Numbers in parentheses refer to the total number of cases positive for the respective substance.

Prescription and Over the Counter Drugs

DEA TOX confirmed 83 detections comprising of 30 prescription or OTC drugs (Table 3) in the 4th quarter of 2020.

Table 3. Prescription or OTC drugs detected – 4th Quarter 2020*

Pain Reliever	Acetaminophen (23) Ibuprofen (1)
Antihistamine	Chlorpheniramine (9) Diphenhydramine (3) Doxylamine (1)
Anticonvulsant	Gabapentin (9) Levetiracetam (1)
Antiphyschotic	Aripiprazole (1) Buspirone (1)
Antidepressant	Citalopram (3) Bupropion (1) Sertraline (1)
Anesthetic	Benzocaine (1)
Antidiabetic	Metformin (1)
Antibiotic	Sulfomethoxazole (1)
Antitusive	Dextromethorphan (1)
Benzodiazepine	Alprazolam (4) Midazolam (3) Oxazepam (1)
Cardiovascular	Amiodarone (1) Atropine (1) Lisinopril (1)
Decongestant	Phenylpropalonamine (3) Psuedoephedrine (1)
Muscle Relaxant	Carisoprodol (1)
Opioids	Naloxone (4) Buprenorphine (2) Naltrexone (1) Tramadol (1)
Respiratory	Albuterol (1)

* Numbers in parentheses refer to the total number of cases positive for the respective substance.

Contact Information

We invite medical and law enforcement facilities to contact our program if you encounter an overdose of a suspected synthetic drug and desire to have any leftover biological samples (blood preferred) analyzed further for such synthetic substances.

- Sample Qualifications:
    - Patients thought to have ingested a synthetic drug, where the traditional drug screen has produced little or no viable options to explain the symptoms exhibited by the patient (alcohol and THC are exempted)
- How to Contact Us and Send Your Samples:
    - Once the above qualifications are satisfied:
        - Email **DEATOX@USDOJ.GOV** with a brief description of the case (including initial toxicology screen and history) and a request for testing.
        - DEA will respond to each inquiry, and if approved, will send the instructions for packing and shipping of sample(s) to UCSF.
            - The main reason for disapproval of a case would be the identification of substances including methamphetamine, heroin, fentanyl, cocaine, LSD, PCP etc. in a routine toxicology screening at your facility.
            - This program's goal is to connect symptom causation to abuse of newly emerging synthetic drugs (e.g. synthetic cannabinoids, synthetic cathinones, fentanyl-related substances, other hallucinogens etc.).
    - Ensure that you de-identify and label the sample with a numerical value, sex, date of birth or age, and the date and time the sample was collected in accordance with the labeling instructions (sent with shipping instructions).
    - Keep a master list of the patients and the numerical values you allocated to each sample at your institution.

- Cost of Sample Analysis:
  - DEA will cover the full cost of testing the patient samples.
    - The sender will only be responsible for paying for packing and shipping samples to UCSF.
- Turn-around Time:
  - Results are expected within three weeks of receipt of the sample at UCSF except in rare occurrences when a novel substance is identified.