

**Purpose:** The objective of this report is to provide up-to-date information regarding the status of synthetic cannabinoid prevalence, positivity, and discovery within the United States between March 2018 and August 2018.

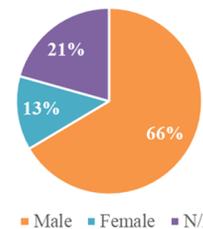
**Project Overview:** Novel psychoactive substances (NPS), including synthetic cannabinoids, continue to provide great challenges for forensic scientists, clinicians, and public health and safety personnel. Synthetic cannabinoids have been implicated in an increasing number of emergency room admissions, death investigations, and intoxication events in corrections populations. Maintaining a current scope of analysis can be challenging, often requiring availability of comprehensive analytical methodologies and reference materials for identifications. This project employs a novel approach to analysis of biological samples and extracts by comprehensive non-targeted data acquisition using liquid chromatography high resolution quadrupole time-of-flight mass spectrometry (LC-QTOF). The scope of analysis contains more than 250 synthetic cannabinoid parent compounds and metabolites. Sample analysis and data processing occur on a weekly basis. In addition, retrospective analysis of data-files is conducted as new synthetic cannabinoid standards become available. This model allows for real-time identification of novel synthetic cannabinoids and trend analyses. In collaboration with NMS Labs, sample extracts were received during this reporting period from forensic casework where for cause testing was directed for synthetic cannabinoids using a regularly updated panel. In total, cases were submitted from 24 states and the District of Columbia.

## Synthetic Cannabinoid Positivity

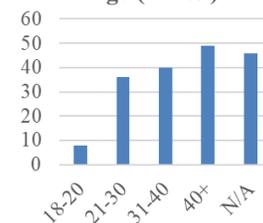
Analyte (Parent)	Positive Samples	Positivity (%; n=1,037)
5F-ADB	100	9.6
MMB-FUBINACA	25	2.4
ADB-FUBINACA	13	1.3
5F-MDMB-PICA	13	1.3
4-cyano CUMYL-BUTINACA	4	0.4
5F-EDMB-PINACA	4	0.4
FUB-AKB-48	4	0.4
5F-ADBICA	2	0.2
AB-PINACA	2	0.2
AB-CHMINACA	2	0.2
5F-AMB	1	0.1
5F-ADB-PINACA	1	0.1
5F-PB-22	1	0.1
MMB-CHMICA	1	0.1
MDMB-FUBINACA	1	0.1
5CI-AKB-48	1	0.1
MAB-CHMINACA	1	0.1

## Demographics

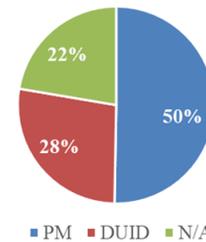
Gender (n=179)



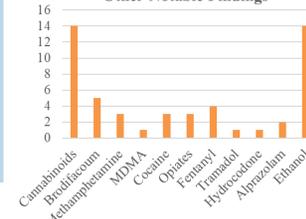
Age (n=179)



Case Type (n=179)

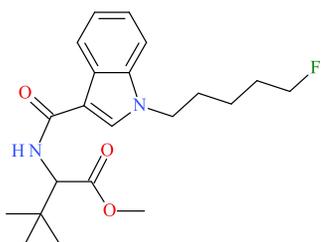


Other Notable Findings

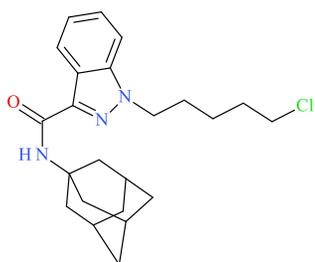


## New Synthetic Cannabinoids Identified Since January 2018

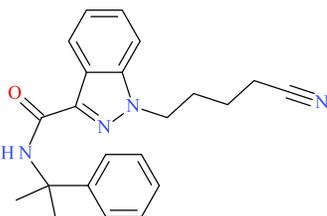
5F-MDMB-PICA



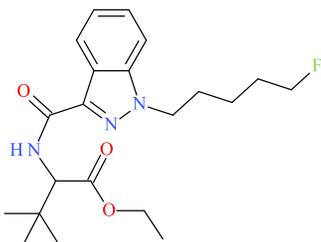
5CI-AKB-48



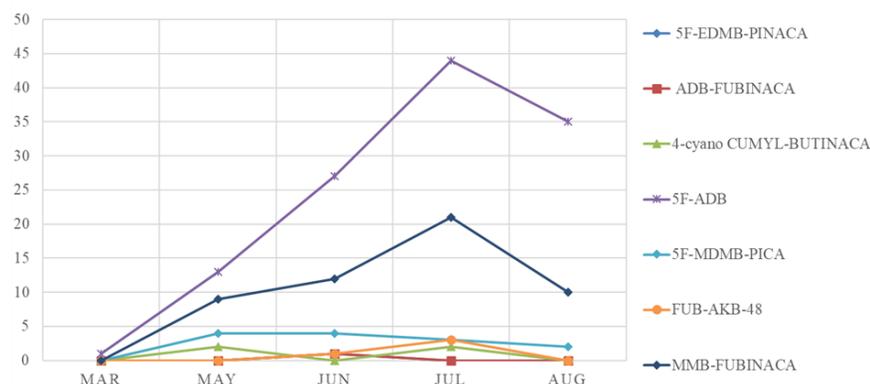
4-cyano-CUMYL-BUTINACA



5F-EDMB-PINACA



## Synthetic Cannabinoid Trends by Month



\*Plot based on date received. Testing of all samples submitted in August 2018 may not be complete.

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