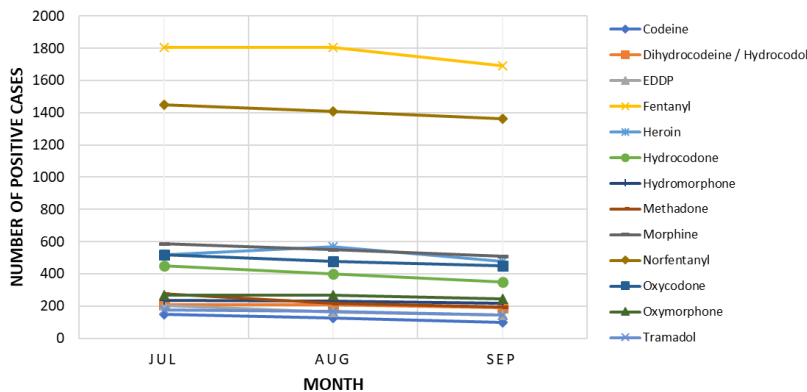**Purpose:** The objective of this report is to provide timely information regarding the status of opioids including novel opioids and fentanyl analog prevalence, positivity, and discovery within the United States.

Project Overview: There are many indicators, such as emergency room admissions, poison center calls, drug treatment admissions, drug possession and trafficking arrests, crime laboratory statistics, and medical examiner data, that the illicit use and abuse of both prescription opioids, such as morphine, fentanyl and oxycodone, and traditionally abused opioids, most notably heroin, are increasing. In addition, many novel opioid agonists have been identified over the last three years that are now contributing to the opioid death statistics at an increasing, but poorly documented, rate. In collaboration with NMS Labs, this project sought to use de-identified raw electronic high resolution mass spectrometry data from postmortem and driving under the influence of drugs (DUID) cases to develop trend reports and perform datamining of the raw data against a continually updated database of common opioids and emerging opioids. Data was processed against a library containing 180 different opioids and/or fentanyl analogs.

Opioid Positivity

Between July and September 2019, there was a total of 19,507 cases positive for one or more routine opioid(s). Fentanyl accounted for the highest positivity with 5,307 cases, up slightly from 5,061 in the previous quarter. There were 1,562 positive heroin cases, which was a decrease from quarter 2 (n=1,718). The number of positive morphine cases also decreased from 1,947 in quarter 2 to 1,650 in quarter 3.

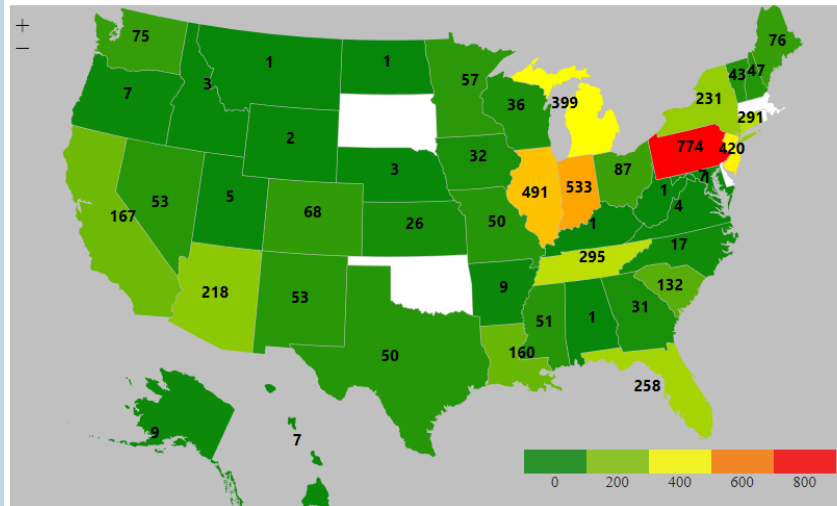**OPIOID POSITIVITY JULY - SEPTEMBER 2019**

Legend: Codeine; Dihydrocodeine / Hydrocodol; EDDP; Fentanyl; Heroin; Hydrocodone; Hydromorphone; Methadone; Morphine; Norfentanyl; Oxycodone; Oxymorphone; Tramadol

*Heroin positivity determined by detecting 6-MAM in any fluid and morphine in the blood.

Fentanyl

Heat Map of Fentanyl Positive Cases July - September 2019

Data has not been normalized to account for testing volume. Geographical distribution may be limited by location of agencies submitting samples to NMS Labs and not necessarily representative of all jurisdictions.

Fentanyl Demographics (n= 5,307)

Sex	
Male	3,174
Female	1,201
Unknown	932
Age	
Average	40 (±13)
Median	41
Range	0-109

80% of cases were death investigations; 15% were law enforcement; 5% other

Heroin

Heroin Demographics (n= 1,562)

Sex	
Male	1,065
Female	330
Unknown	167
Age	
Average	40 (±12)
Median	41
Range	5-81

94% of cases were death investigations; 4% were law enforcement; 1% were hospital; 1% other

Heat Map of Heroin Positive Cases July - September 2019

Data has not been normalized to account for testing volume. Geographical distribution may be limited by location of agencies submitting samples to NMS Labs and not necessarily representative of all jurisdictions.
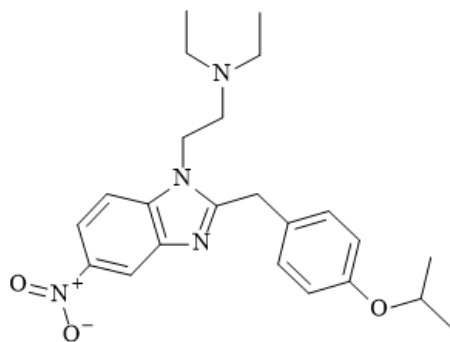
Novel Opioid Positivity

Between July and September 2019, there were a total of 201 cases positive for one or more novel opioid, which decreased from 310 in the previous quarter. Valerylfentanyl accounted for the highest positivity with 59 cases, followed by carfentanil with 52 cases followed by para-fluoroisobutyrylfentanyl (p-FIBF) with 35 cases.

NOVEL OPIOID POSITIVITY JULY - SEPTEMBER 2019

Legend: 2-Furanylfentanyl; 3-Methylfentanyl; Acrylfentanyl; Butyryl/Isobutyrylfentanyl; Carfentanil; Cyclopropylfentanyl; FIBF/para-fluorobutyrylfentanyl; Methoxyacetylfentanyl; U-47700; Valerylfentanyl; Fluorofentanyl; Tianeptine

Novel Opioids

Heat Map of Novel Opioid Positive Cases July - September 2019
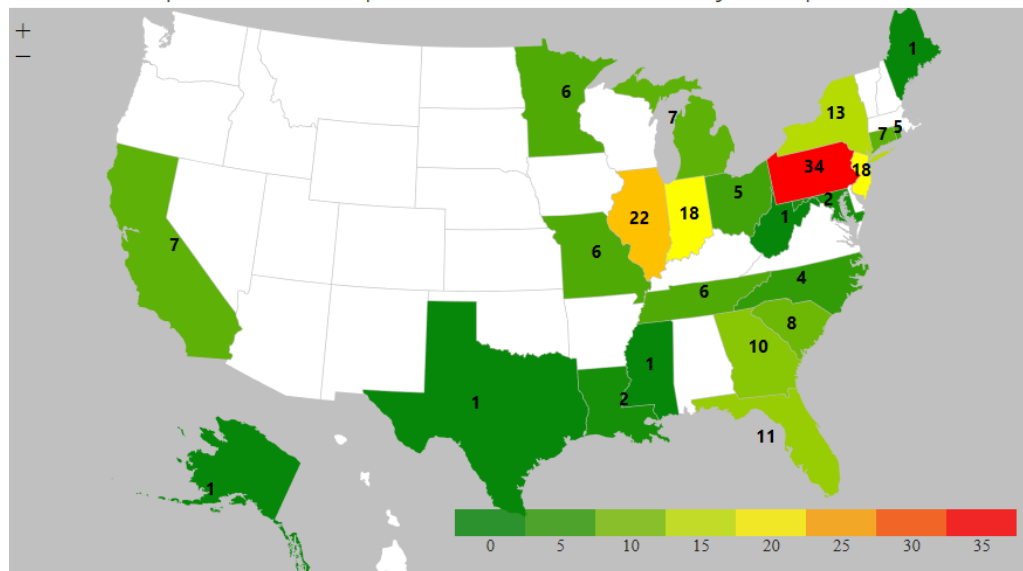
Data has not been normalized to account for testing volume. Geographical distribution may be limited by location of agencies submitting samples to NMS Labs and not necessarily representative of all jurisdictions.

New Analyte Identified

Isotonitazene: Identified in samples beginning in August 2019

For more information on this compound visit www.NPSDiscovery.org

Demographic Information for Top Three Novel Opioids

Valerylfentanyl Demographics (n=59)

Sex	
Male	38
Female	11
Unknown	10
Age	
Average	36 (±11)
Median	41
Range	18-64

Carfentanil Demographics (n=52)

Sex	
Male	40
Female	11
Unknown	1
Age	
Average	38 (±10)
Median	42
Range	21-63

p-FIBF Demographics (n=35)

Sex	
Male	22
Female	8
Unknown	5
Age	
Average	42 (±15)
Median	42
Range	20-72

81% of cases were death investigation; 8% were law enforcement; 8% were other; 3% were hospital