KATHY HOCHUL
Governor
CHINAZO CUNNINGHAM, MD
Commissioner

NEW YORK STATE | Office of Addiction Services and Supports

Addiction Data Bulletin

February 2024, No. 2024-02

Stimulant Use and Stimulant Use Disorder In New York State

PURPOSE OF THIS BULLETIN

This bulletin provides an overview of the epidemiology of stimulant use and stimulant use disorder, including potential harms related to stimulant use and current evidence-based treatment options in New York. This bulletin summarizes data for substance use disorder treatment admissions to programs certified by the New York State Office of Addiction Services and Supports (OASAS) and provides clinical implications and recommendations.

KEY TAKEAWAYS

- Drug overdose deaths involving cocaine increased by 125.7% from 1,276 (6.5 per 100,00 population) to 2,880 (14.5 per 100,000) and psychostimulants increased by 268.9% from 180 (0.9 per 100,000) to 664 (3.3 per 100,000) among New York residents from 2018-2022.
- New York Counties with the highest rates of psychostimulant-involved overdose deaths were clustered near the New York-Pennsylvania border. These counties had significantly higher psychostimulant-involved overdose death rates than the overall New York psychostimulant-involved overdose death rate.
- The percent of stimulant use reported at admission increased significantly from 39.6% to 44.3% from 2018-2022.
- Psychostimulants reported as the primary substance of use at admission significantly increased from 2018-2022.
- While cocaine reported as the primary substance of use at admission significantly decreased from 2018-2020, cocaine reported as the primary substance of use at admission significantly increased from 2020-2022.
- Stimulant use reported at admission in 2022 was significantly higher among gay and bisexual males than among heterosexual males. Bisexual and gay males were also more likely to report injecting stimulants than heterosexual males.
- When stimulants were the primary substance of use at admission, non-Hispanic White patients and younger patients were more likely to have psychostimulant use reported as the primary substance of use while non-Hispanic Black patients and those aged 55 years and older were more likely to have cocaine reported.

TYPES OF STIMULANTS DEFINED IN THIS BULLETIN:

Stimulants include both *cocaine* (including 'crack cocaine') and synthetic stimulants referred to as *psychostimulants*.

Cocaine Organic stimulant derived from the leaves of the coca plant including cocaine hydrochloride ('cocaine') and its derivates ('crack cocaine'). FDA-approved indications of cocaine are primarily as a local anesthetic.

Amphetamine and Derivatives Synthetic psychostimulants. FDA-approved indications include the treatment of narcolepsy and attention deficit hyperactivity disorder (methylphenidate and amphetamine-dextroamphetamine).

Methamphetamine Synthetic psychostimulant.

MDMA Synthetic psychostimulant 3,4-methylenedioxy-methamphetamine (MDMA) chemically similar to both stimulants and hallucinogens.

STIMULANTS NOT DESCRIBED IN THIS BULLETIN:

Cathinones (Khat) Organic stimulant derived from the Khat plant.

Synthetic Cathinones Synthetic stimulants chemically similar to the organic cathinones. Includes what are commonly known as "bath salts". Also included are synthetic cathinones that have FDA-approved indications for the treatment of depression or smoking cessation (bupropion; brand names Wellbutrin, Zyban).

CHARACTERISTICS OF STIMULANTS

Stimulants include both plant-derived organic stimulants ('cocaine') and synthetically processed stimulants ('psychostimulants'). Stimulants (cocaine and psychostimulants) are grouped together because they all stimulate the central nervous system by enhancing the activity of serotonin, dopamine, and norepinephrine.

Stimulants can be smoked/vaped, injected, used intranasally, taken as a suppository, or taken orally. Cocaine is commonly available in powder form, and crack cocaine is generally available in a crystalized form. Psychostimulants vary in form ranging from pressed pills to powder or crystal. Stimulants typically have an immediate-to-60-minute onset depending on the method of administration. Stimulants that are smoked/vaped, injected, or used intranasally typically have a faster onset of action compared to those taken orally or as a suppository.

FOURTH WAVE OF THE OVERDOSE CRISIS The overdose epidemic has been described as having three waves: the 1st beginning in the 1990s with the rise of prescription opioid overdose deaths; the 2nd beginning in 2010 with the rise in heroin-related overdose deaths; and the 3rd beginning in 2013 with the rise in high potency synthetic opioids such as fentanyl and its analogues. In 2021, while drug overdose deaths involving synthetic opioids continue to rise, stimulants are increasingly identified in drug overdose deaths involving synthetic opioids. Substance use that involved more than one substance taken simultaneously or at overlapping times is referred to as *polysubstance use*—this type of use can occur either intentionally or unintentionally. Increasing drug overdose deaths due to stimulant and opioid polysubstance use prompts the need for overdose prevention education, naloxone distribution, and for evidence-based treatments for co-occurring substance use disorder and conditions.

POTENTIAL HARMS OF STIMULANT USE

Stimulants can cause a range of potential physical and mental health harms including stimulant use disorder, drug overdose, and death. Several psychostimulants such as methylphenidate and amphetamine-dextroamphetamine are FDA-approved and have therapeutic uses; however, all are Schedule II Drugs due to their simultaneous therapeutic value and addictive potential.

Stimulant use disorder is a potential harm that can develop, either over the short-term or long-term, as a result from stimulant use. The acute and chronic effects of stimulants vary by individual based on underlying physical and mental health conditions. In addition to the psychotropic effects, stimulant use can cause or worsen pre-existing cardiovascular and cerebrovascular conditions, such as arrhythmias, cardiac ischemia, strokes, and seizures; or can cause or worsen pre-existing mental health conditions, such as anxiety, depression, and psychotic symptoms. *Overamping* is a term that is widely used to describe adverse effects of use in which symptoms develop including psychosis, seizure, palpitations, hyperthermia, or cerebrovascular or cardiac events.

EPIDEMIOLOGY OF STIMULANT USE IN NEW YORK

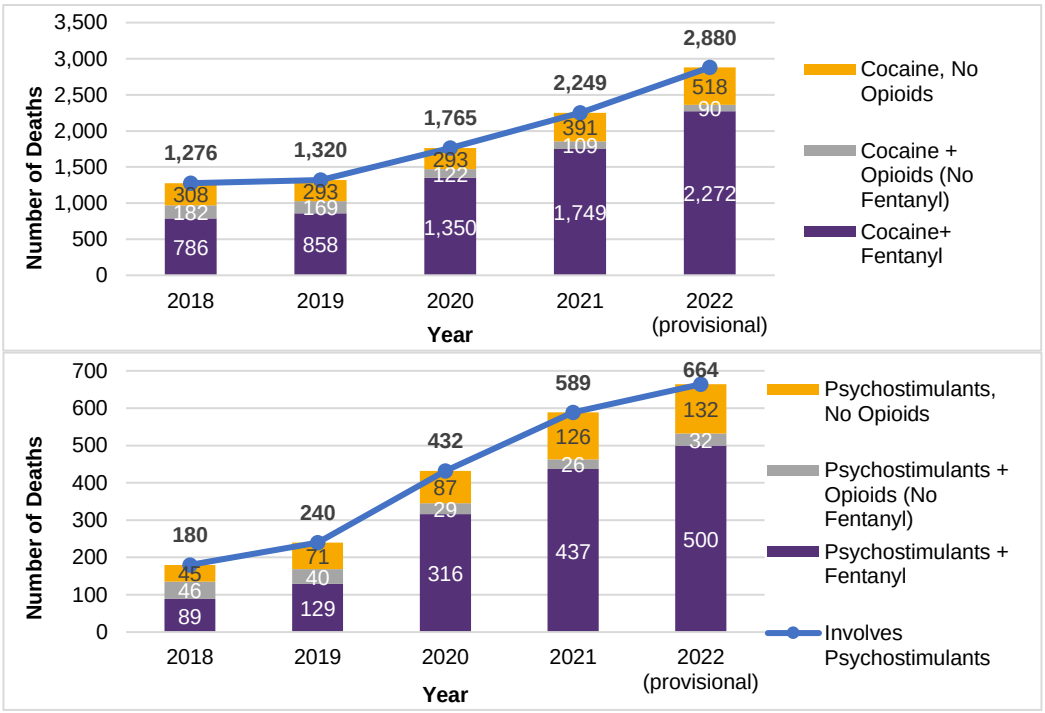
Prevalence of Stimulant Use Among Adult and Youth New York Residents

In New York in 2021, 2.5% of adults reported cocaine use in the past year, and 3.6% of youth (grades 9-12) reported cocaine use in their lifetime; both rates exceeded the national averages (1.9% and 2.5%, respectively). Past year prevalence of methamphetamine use among adults was lower than the national average (0.6% compared to 1.0%). Lifetime methamphetamine use among youth was 3.5% compared to the national average of 1.8%.

Drug Overdose Deaths Involving Stimulants With and Without Opioids

Figure 1 depicts trends in the number of deaths involving stimulants among New York residents from 2018-2022. In 2022, 2,880 drug overdose deaths involved cocaine and 664 involved psychostimulants, representing significant increases of 125.7% and 268.9%, respectively, since 2018. Fentanyl was present in 78.9% and 75.3% of cocaine and psychostimulant deaths, respectively.

Figure 1: Drug Overdose Deaths Involving Cocaine and Psychostimulants Among New York Residents, 2018-2022



Overdose deaths and death rates per 100,000 residents involving cocaine and opioids (respectively) are displayed in Appendix Tables 3 and 4.

New York counties with the highest rates of psychostimulant-involved drug overdose deaths were clustered along or near the New York-Pennsylvania border: Chautauqua (22.9 deaths per 100,000 residents), Broome (22.8), Chemung (13.2), Steuben (12.9), and Tompkins (11.4). Psychostimulant-involved drug overdose rates for these counties were significantly higher than the Statewide rate of 3.3 deaths per 100,000.

STIMULANT USE REPORTED AT SUBSTANCE USE DISORDER TREATMENT ADMISSION

Stimulant Use Trends

Figure 2 depicts stimulant use reported by year of admission. While the number of admissions decreased during the time-period, the proportion reporting any stimulant use increased. The percentage of admissions with stimulant use reported increased significantly from 39.6% to 44.3% from 2018-2022.

Figure 2: Any Stimulant Use Reported in Admissions, 2018-2022

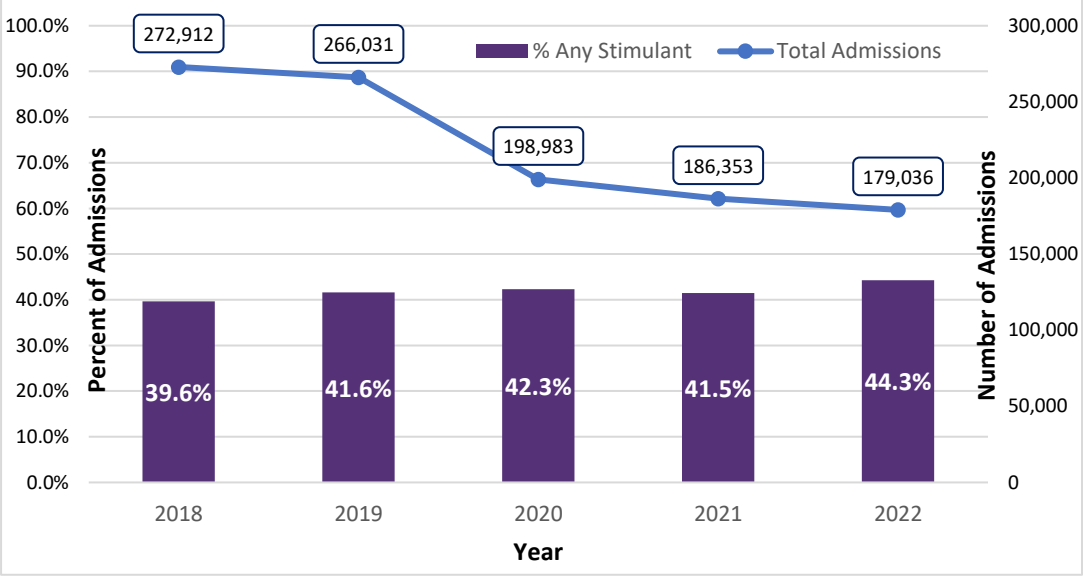


Figure 3 depicts the number of admissions in which alcohol, opioids, cannabis, and stimulants were reported as primary substances of use in 2022. Alcohol was the most common primary substance of use reported (45.9%, 82,225 of 179,036 admissions) followed by opioids (30.3%, 54,176 of 179,036 admissions). Of all 2022 admissions, 13.0% reported cocaine as the primary substance of use (23,200 of 179,036 admissions). The proportion of admissions in which co-use of stimulants was reported as secondary and/or tertiary substance of use are also depicted. Among admissions in which opioids were reported as the primary substance of use, 49.9% also reported stimulants as a secondary or tertiary substance of use. Stimulants as secondary or tertiary substance of use were reported in 30.9% and 14.3% of admissions in which the primary substance of use was alcohol or cannabis, respectively.

Figure 3. Percentage of 2022 Admissions (*n*, 179,036) in Which Co-Use of Stimulants was Reported as Secondary or Tetriary Substance of Use, 2022

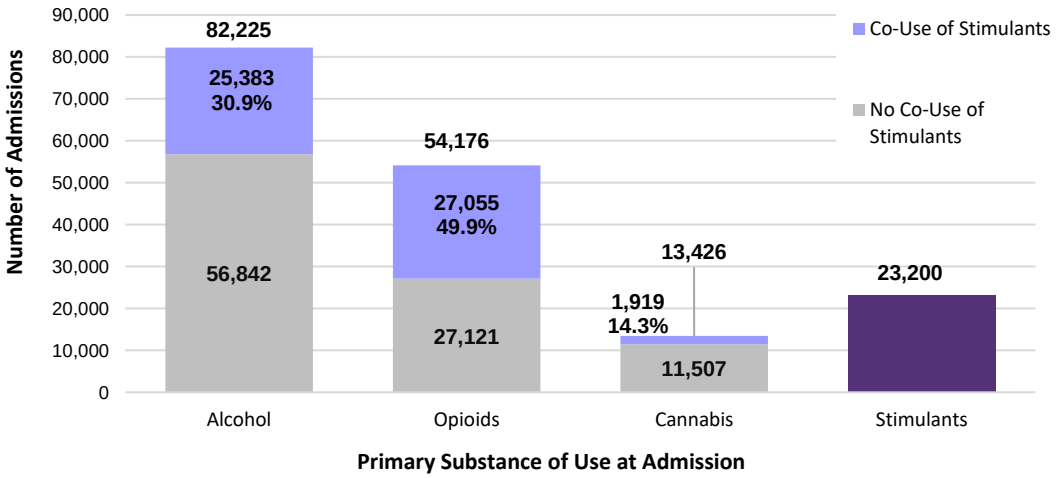


Figure 4: Type of Stimulants Reported as the Primary Substance of Use in Admissions, 2018-2022

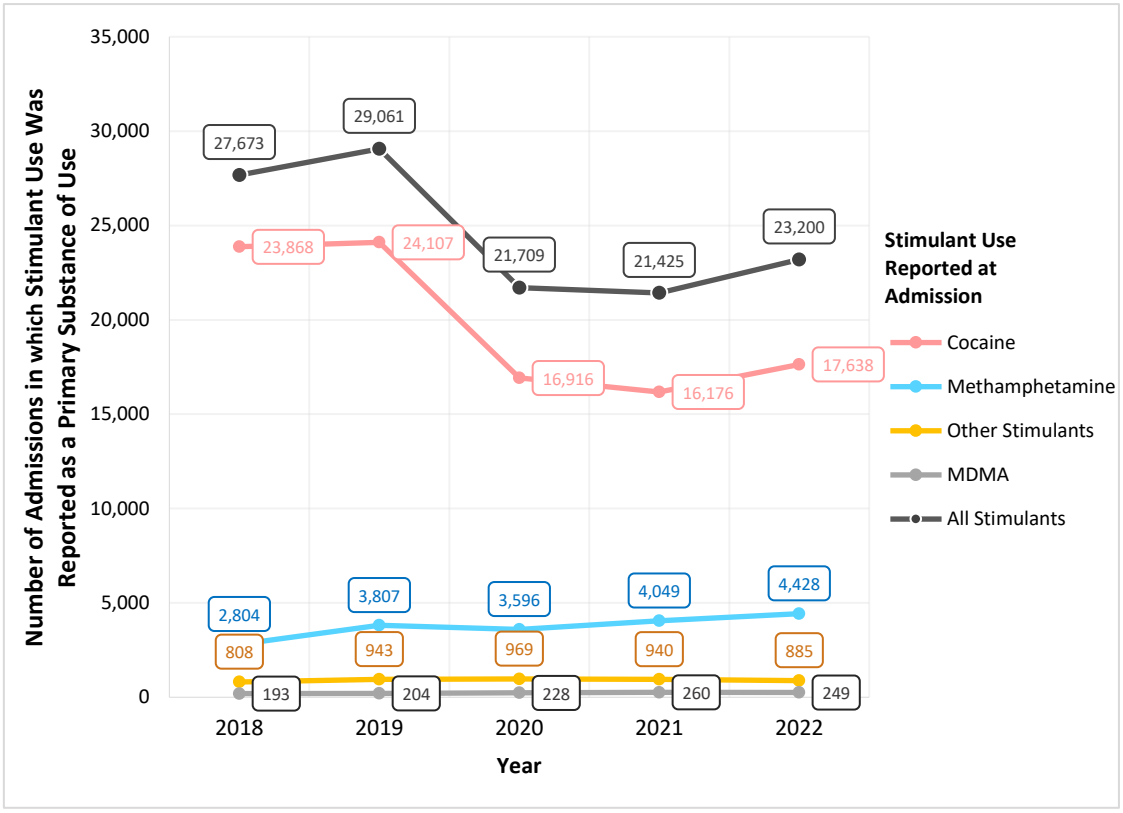


Figure 4 depicts admissions in which stimulants were reported as the primary substance of use by year of admission from 2018-2022. Admissions in which psychostimulants were reported as the primary substance of use significantly increased by 46.2% from 2018 (3,805 admissions) to 2022 (5,562 admissions).

Admissions in which methamphetamine was reported as the primary substance of use significantly increased by 57.9% from 2018 (2,804 admissions) to 2022 (4,428 admissions). Similarly, from 2018 to 2022, admissions in which MDMA and other stimulants (e.g., amphetamines, ephedrine, other synthetic stimulants) were reported as the primary substance of use at admission both significantly increased by 29.0% (193 to 249 admissions) and 9.5% (808 to 885 admissions), respectively. However, admissions in which cocaine was reported as the primary substance of use significantly decreased by 26.1% from 2018 (23,868 admissions) to 2022 (17,638 admissions).

Patient Demographic Characteristics and Stimulant Use

Admissions in which stimulants were reported as the primary substance of use varied significantly by sexual orientation, race/ethnicity, and age. Table 1 depicts the number and proportion of admissions in which stimulant use was reported by male patients reporting heterosexual and gay or bisexual sexual orientation at admission.

Overall stimulant use, methamphetamine use specifically, and stimulant injection use were reported significantly more in admissions for gay or bisexual males than for heterosexual males. Among those aged ≥35 years, cocaine use was reported significantly more in admissions for heterosexual males than for gay or bisexual males. Among those aged ≤34 years, methamphetamine use was reported significantly more in admissions for gay or bisexual males than in admissions for heterosexual males.

Table 1. Stimulant Use Reported at Admission by Males (Sex at Birth) by Sexual Orientation, 2022

	Heterosexual (n, 65,085)		Gay or Bisexual (n, 2,449)	
Substance of Use Reported	**n**	**%**	**n**	**%**
Any stimulant use	25,424	36.8	1,353	55.2
Methamphetamine use	3,591	14.1	782	57.8
Any stimulant injection use	3,271	12.9	217	16.0

Figure 5: Type of Stimulant Reported as Primary Substance of Use by Patient Demographic Categories, 2022

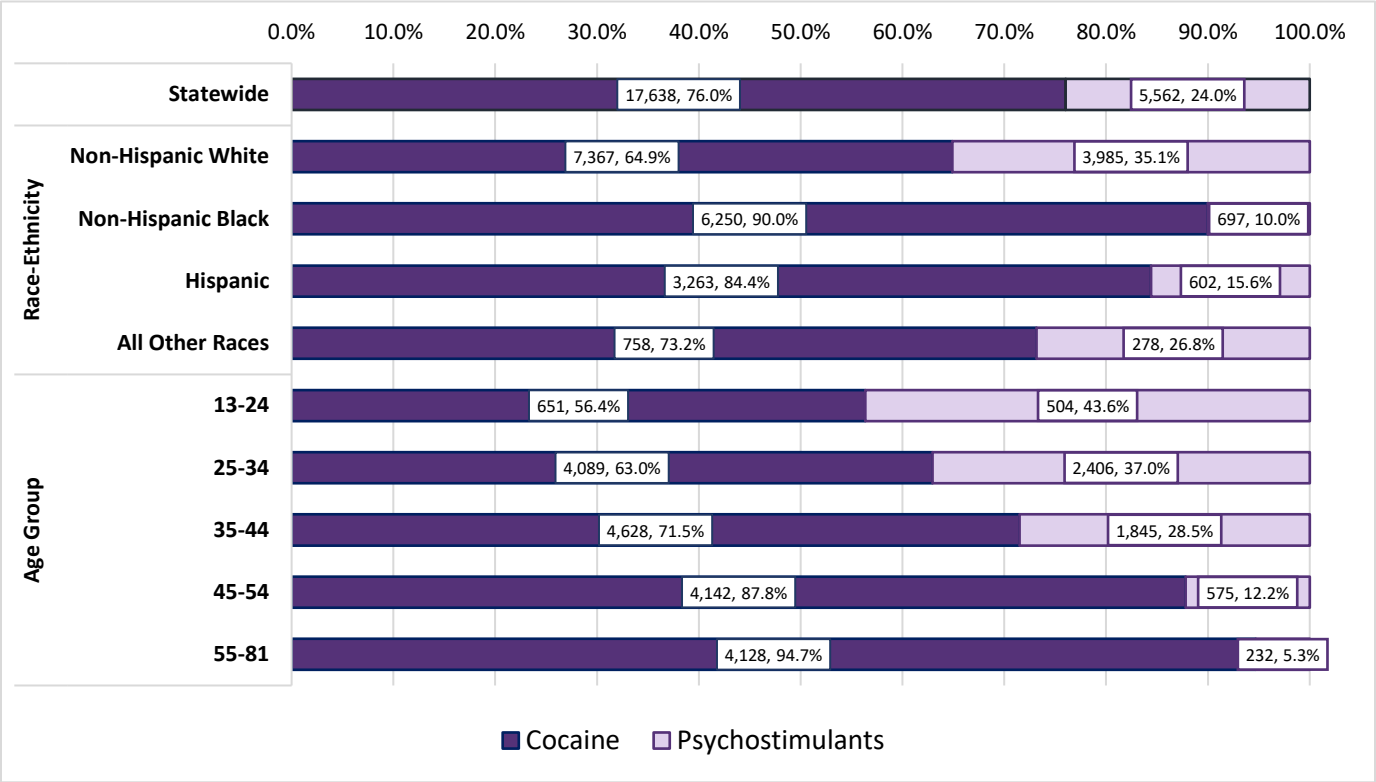


Figure 5 depicts differences in type of stimulant (cocaine and psychostimulants) reported at admission by race/ethnicity and age categories. Of the admissions in which stimulants were reported as the primary substance of use, cocaine was the most commonly reported stimulant. Admissions for Non-Hispanic Black patients and those between the ages of 55 and 81 years were most likely to have cocaine reported as the primary substance of use at admission, 90.0% and 94.7%, respectively.

Psychostimulants reported as the primary substance of use at admission were significantly reported more often for Non-Hispanic White patients and those between the ages of 13 and 24. For Non-Hispanic White patients, 35.1% of admissions reported primary psychostimulant use. For those between the ages of 13 and 24, 43.6% of admissions reported primary psychostimulant use.

WHAT DATA ARE INCLUDED IN THE NYS OASAS TREATMENT ANALYSES? All admissions are of New York residents and admission location is attributed to a patient's stated residence rather than to the SUD treatment site. Admissions do not represent unique individuals but rather total admissions in a calendar year. All SUD treatment data derive from the NYS OASAS Client Data System (data extracted on 06/27/2023).

HOW ARE SUBSTANCE USE DATA COLLECTED AND REPORTED? Individuals who have a diagnosed SUD often use multiple substances in addition to the substance(s) for which they are seeking treatment. At admission, clinicians may indicate up to three substances of use and rank them as primary, secondary, or tertiary substances of use informed by patient reporting. Note that reported substances may or may not fulfill substance use disorder criteria. Unless otherwise specified, use represents primary, secondary, and tertiary substances reported at admission.

OTHER DATA SOURCES: Adult past year use derive from the 2021 National Survey on Drug Use and Health (NSDUH). Youth lifetime use derive from the Centers for Disease Control and Prevention, 2021 Youth Risk Behavior Survey Data. Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, Provisional Mortality on CDC WONDER Online Database and include data from the final Multiple Cause of Death Files, 2018-2020, and from provisional data for years 2021-2022, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at http://wonder.cdc.gov/mcd-icd10-provisional.html on Sep 14, 2022

DATA ANALYSIS: All rates presented are per 100,000 New York residents. Statistical significance was calculated using z-tests and chi-square testing, as appropriate, with significance identified at the 0.05 level.

CLINICAL IMPLICATIONS

Key points regarding interventions for stimulant use and stimulant use disorder are outlined below. For more information, please see https://oasas.ny.gov/system/files/documents/2020/02/cocaine-stimulant-guidance.pdf.

- Given the increase in overdose deaths involving both stimulants and opioids, all individuals who use cocaine or psychostimulants should be given overdose prevention education and naloxone, regardless of whether they do or do not report opioid use.
- Individuals who use cocaine or psychostimulants should receive evidence-based treatment for co-morbid substance use disorders, psychiatric conditions, and medical problems.
- While psychosocial treatment (such cognitive behavioral therapy and contingency management) is currently the standard of care for stimulant use disorder, some medications have emerging evidence for efficacy, although no medications have received FDA approval to treat stimulant use disorders.
- Recent guidance has been co-released by American Society of Addiction Medicine and the American Academy of Addiction Psychiatry to assist clinicians in treatment individual with stimulant use disorder or other morbidities related to stimulant use drawing on empirical evidence and clinical judgment.
- Assessment of clinical benefit from stimulant use disorder treatment should include domains such as cessation of use, reduction in use, safer use, improvement in mental or physical health, and gains in functioning.
- Substance use disorder treatment providers should incorporate harm reduction strategies into treatment plans and should consider harm reduction to be an essential part of evidence-based treatment for those who use cocaine and/or psychostimulants.

AUTHORS: Andrew Heck, Gail Jette, Ashly E. Jordan, Angela Zhang, Constance Burke, Chinazo O. Cunningham
SUGGESTED CITATION: Heck A, Jette G, Jordan AE, Zhang A, Burke C, Cunningham, CO. Stimulant Use and Stimulant Use Disorder in New York State. New York State Office of Addiction Services and Supports: Addiction Data Bulletin (No. 2024-02); February 2024.

Appendix

Appendix Table 1: Number and Percent of Admissions by Primary Substance of Use and Race/Ethnicity, 2022

Substances	Non-Hispanic White		Non-Hispanic Black		Hispanic		All Other Races		Total	
	N	%	N	%	N	%	N	%	N	%
Cocaine	7,367	8.5	6,250	14.2	3,263	8.3	758	8.3	17,638	9.9
Methamphetamine	3,277	3.8	480	1.1	462	1.2	209	2.3	4,428	2.5
Other Stimulant[1]	708	0.8	217	0.5	140	0.5	69	0.7	1,134	0.6
Non-Stimulant	75,631	86.9	36,932	84.2	35,160	90.1	8,113	88.7	155,836	87.0
Total	**86,983**	**100.0**	**43,879**	**100.0**	**39,025**	**100.0**	**9,149**	**100.0**	**179,036**	**100.0**

Data Source: New York State OASAS Data Warehouse, Client Data System, Extract June 27, 2023

[1] Other stimulants were grouped due to small cell counts for MDMA. Therefore, to ensure reporting for all categories, we combined MDMA with other stimulants including amphetamines, ephedrine, and other synthetic stimulants.

Appendix Table 2: Number and Percent of Admissions by Primary Substance of Use and Age Group, 2022

Substances	<=24 years		25-34 years		35-44 years		45-54 years		>=55 years		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Cocaine	651	4.7	4,089	8.6	4,628	9.9	4,142	12.0	4,128	11.2	17,638	9.9
Methamphetamine	361	2.6	1,897	4.0	1,501	3.2	475	1.4	194	0.5	4,428	2.5
Other Stimulant[1]	143	1.0	509	1.1	344	0.7	100	0.3	38	0.1	1,134	0.6
Non-Stimulant	12,692	91.7	40,818	86.3	40,130	86.1	29,839	86.3	32,357	88.1	155,836	87.0
Total	**13,847**	**100.0**	**47,313**	**100.0**	**46,603**	**100.0**	**34,556**	**100.0**	**36,717**	**100.0**	**179,036**	**100.0**

Data Source: New York State OASAS Data Warehouse, Client Data System, Extract June 27, 2023

[1] Other stimulants were grouped due to small cell counts for MDMA. Therefore, to ensure reporting for all categories, we combined MDMA with other stimulants including amphetamines, ephedrine, and other synthetic stimulants.

Appendix Table 3: Drug Overdose Deaths Involving Cocaine by County, 2022[1]

County of New York State Resident	Deaths	Crude Rate
Albany	39	12.4
Bronx	453	31.8
Broome	10	5.1
Chautauqua	15	11.8
Chemung	11	13.2
Chenango	0	0.0
Cortland	0	0.0
Dutchess	52	17.5
Erie	204	21.5
Fulton	13	24.5
Hamilton	0	0.0
Kings	359	13.6
Lewis	0	0.0
Monroe	248	32.8
Nassau	115	8.3
New York	244	15.5
Niagara	45	21.3
Oneida	39	16.9
Onondaga	86	18.2
Orange	34	8.4
Queens	242	10.4
Rensselaer	17	10.6
Richmond	81	16.4
Rockland	14	4.1
Schenectady	36	22.8
Schuyler	0	0.0

County of New York State Resident	Deaths	Crude Rate
Suffolk	259	17.0
Sullivan	24	30.1
Tompkins	13	12.4
Ulster	23	12.6
Wayne	12	13.2
Westchester	68	6.8
Total for Suppressed Counties	124	N/A
State Total	**2,880**	**14.5**

[1]2022 data are provisional

Counties not shown are suppressed because value is <10

Crude rates are per 100,000 population

Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, Provisional Mortality on CDC WONDER Online Database and include data from the final Multiple Cause of Death Files, 2018-2020, and from provisional data for years 2021-2022, as compiled by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at http://wonder.cdc.gov/mcd-icd10-provisional.html on Sep 14, 2022

Appendix Table 4: Drug Overdose Deaths Involving Psychostimulants, 2022[1]

County of New York State Resident	Deaths	Crude Rate
Bronx	48	3.4
Broome	45	22.8
Chautauqua	29	22.9
Chemung	11	13.2
Dutchess	18	6.1
Erie	48	5.0
Kings	52	2.0
Lewis	0	0.0
Monroe	16	2.1
Nassau	32	2.3
New York	37	2.3
Niagara	12	5.7
Oneida	20	8.7
Onondaga	13	2.7
Queens	39	1.7
Richmond	14	2.8
Schoharie	0	0.0
Steuben	12	12.9
Suffolk	53	3.5
Tompkins	12	11.4
Westchester	10	1.0
Yates	0	0.0
Total for Suppressed Counties	143	N/A
State Total	**664**	**3.3**

[1]2022 data are provisional

Counties not shown are suppressed because value is <10

Crude rates are per 100,000 population

Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, Provisional Mortality on CDC WONDER Online Database and include data from the final Multiple Cause of Death Files, 2018-2020, and from provisional data for years 2021-2022, as compiled by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed at http://wonder.cdc.gov/mcd-icd10-provisional.html on Sep 14, 2022