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Polysubstance Use Disorders in Four State Medicaid Programs

Authors: Julie M. Donohue, PhD; Susan Kennedy, MPP, MSW; Logan Sheets

Introduction

In 2019, over 71,000 Americans died from a drug overdose and, with the onset of the COVID-19 pandemic in 2020, opioid-related deaths have climbed to a new high.[1,2] As states grapple with the opioid epidemic amid a pandemic, the rising prevalence of other drug use is complicating efforts to treat opioid use disorder and prevent overdose deaths. Recent research suggests that more than 30% of opioid deaths also involved benzodiazepines.[3] In addition, the concurrent use of methamphetamines and opioids doubled from 2011 to 2017.[4] A study using 2016-2017 data reported that approximately half of Medicaid enrollees with opioid use disorder had a comorbid other substance use disorder.[5] Yet, little is known about recent trends in multiple or polysubstance use disorders among Medicaid enrollees or the associated consequences for medical conditions including those common among people with injection drug use. Improving understanding of substance use disorder comorbidity burden can help states target interventions to reduce overdose deaths.

With funding from the Medicaid and CHIP Payment and Access Commission (MACPAC), AcademyHealth, in collaboration with the University of Pittsburgh, Ohio State University, West Virginia University, and the University of Maryland, Baltimore County conducted an analysis of four states (MD, OH, WV, PA) participating in the Medicaid Outcomes Distributed Research Network (MODRN). This brief examines the prevalence of diagnoses of polysubstance use disorders, describes the characteristics of Medicaid enrollees with polysubstance use disorders and compares the mental health and medical comorbidities based on the number of unique substance use disorders.

Methods and Approach

This project leveraged AcademyHealth's **MODRN**, a multi-state research collaborative, founded by members of the **State-University Partnership Learning Network** and the **Medicaid Medical Directors Network.** Comprising 13 state Medicaid and public university research partners, MODRN enables timely, standardized analyses of states' Medicaid data to address issues of national public health importance, such as the opioid crisis, while estimating the impact of innovative policies and interventions. AcademyHealth serves as MODRN's administrative coordinating center and works closely with the data coordinating center at the University of Pittsburgh. Together, they manage the core functions of MODRN to support critical multi-state Medicaid analyses on OUD treatment and outcomes.

The University of Pittsburgh, as MODRN's data coordinating center, distributed standardized code to the state university partners who returned aggregate results, not individual data, to the data coordinating center for statistical analyses and reporting. The model enabled efficient, standardized analyses of multiple states' Medicaid data while ensuring the security of health information.

The project analyzed Medicaid enrollment, claims and encounter data from MD, OH, PA, and WV for the period of January 1, 2016 to December 31, 2018. The study population included all full-benefit, non-dually eligible Medicaid enrollees, age 12 to 64 years of age. Seven broad categories of substance use disorders were identified using ICD-10 diagnoses in physical or behavioral health claims in Medicaid including opioid use disorder; alcohol use disorder; cannabis use disorder; cocaine use disorder; other psychoactive substance use disorder; amphetamine-type stimulant use disorder (with and without diagnoses for methamphetamine-re-

1. Katz, J., Goodnough, A., & Sanger-katz, M. (2020, July 15). In shadow of pandemic, U.S. drug overdose DEATHS RESURGE to record. Retrieved December 17, 2020, from https://www.nytimes.com/interactive/2020/07/15/upshot/drug-overdose-deaths.html
2. National Institute on Drug Abuse. (2021, February 25). Overdose death rates. Retrieved December 17, 2020, from https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates
3. McClure, F. L., Niles, J. K., Kaufman, H. W., & Gudin, J. (2017). Concurrent use of opioids and benzodiazepines: evaluation of prescription drug monitoring by a United States Laboratory. Journal of addiction
4. Ellis, M. S., Kasper, Z. A., & Cicero, T. J. (2018). Twin epidemics: the surging rise of methamphetamine use in chronic opioid users. Drug and alcohol dependence, 193, 14-20.
5. O'Brien, P., Henke, R. M., Schaefer, M. B., Lin, J., & Creedon, T. B. (2020). Utilization of treatment by Medicaid enrollees with opioid use disorder and co-occurring substance use disorders. Drug and Alcohol Dependence, 217, 108261.

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lated poisonings); and an 'other substance use disorder' group that included several low-prevalence conditions (e.g., sedative/hypnotic/anxiolytic related disorders, hallucinogen-related disorders, any pregnancy related substance use disorders, inhalant-related disorders). We constructed measures at the person-year-level of the count number of unique substance use disorders (using the seven categories defined above) coded as one, two, or three or more.

Analyses compared the characteristics of Medicaid enrollees by substance use disorder burden including age, sex, race, eligibility category, urban/rural residence, and several comorbidities (human immunodeficiency virus, hepatitis C virus, hepatitis B virus, anxiety, depression, post-traumatic stress disorder, schizophrenia and other psychotic disorders).

Where the prevalence was similar across states, pooled results are presented. For results with between-state variation we presented results stratified by state with state identities masked for reporting purposes.

Key Findings

Across the four states, the pooled prevalence of any substance use disorder increased from 11.2% of adolescent and adult Medicaid enrollees to 11.8% from 2016 to 2018 **(Figure 1)**. In 2018, among enrollees with any substance use disorder, 59.1% had one disorder, 21.5% had two disorders, and 19.4% had three or more substance use disorders, which was similar to prior years.

OUD was the most prevalent substance use disorder in each of the four states, however, the next most common substance use disorder varied across the states **(figure 2)**. In two states, the next most common was alcohol use disorder. In one state the next most common was cannabis use disorder and in another it was other psychoactive substance use disorder.

Figure 1 – In 2018, 4 in 10 Medicaid enrollees with SUD had two or more.

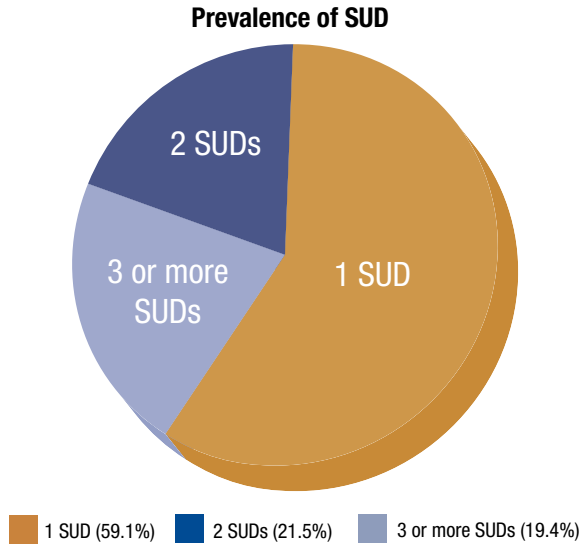

Figure 2 - Prevalence of specific substance use disorders varies by type and state

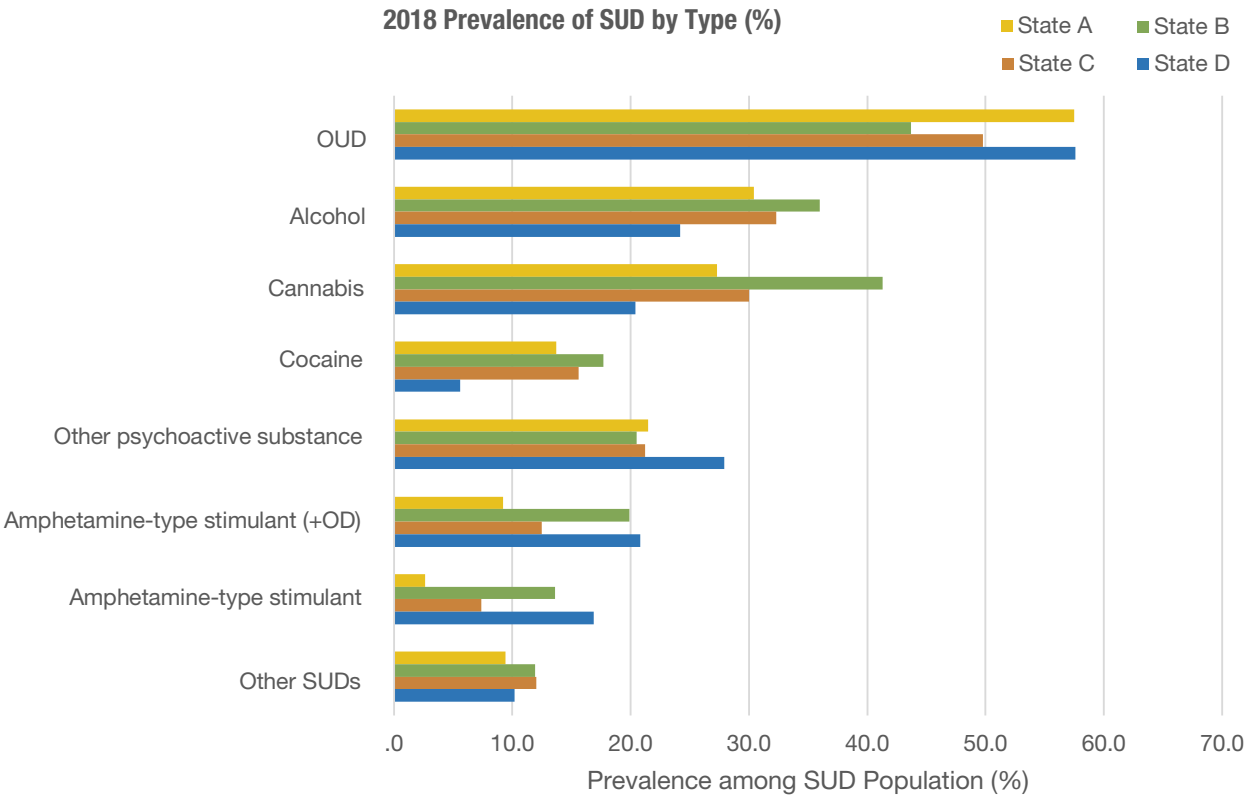

Table 1 –Characteristics of Medicaid enrollees by number of substance use disorders, 2018 data pooled across four states

Table 1 compares the demographic and health status characteristics of enrollees with one, two, or three or more diagnosed substance use disorders in 2018. Enrollees with polysubstance use disorders were more likely to be aged 21-34 or 35-44 compared to enrollees with one substance use disorder. Enrollees with multiple substance use disorders were also more likely to be male. Enrollees with three or more substance use disorders were more likely to be non-Hispanic White compared to those with one substance use disorder (66.7% vs. 62.2%) and less likely to be in a racial/ethnic minority group. Expansion eligibility was more likely among those with two (54.9%) or three (58.8%) compared to one (50.2%) substance use disorders. Enrollees with multiple substance use disorders were slightly more likely to live in rural areas.

The burden of mental health comorbidities was highly correlated with the number of substance use disorders. Among enrollees with three or more substance use disorders, 59.0% and 66.4% had anxiety and mood disorders, respectively, compared to only 36.2% and 39.9% of those with one substance use disorder. The prevalence of schizophrenia and other psychotic disorders was 19.3% among enrollees with three or more substance use disorders compared to only 6.7% among those with one. Similarly, the prevalence of post-traumatic stress disorder in those two groups was 19.4% and 7.9%, respectively.

Pooled characteristics of Medicaid enrollees with one, two, or three or more SUDs, 2018

Characteristics	Number of SUDs	1 SUD	2 SUDs	3 or more SUDs
	Overall (row %)	**59.1**	**21.5**	**19.4**
Age	12-17 (column %)	3.8	2.6	1.2
	18-20	4.6	3.4	2.4
	21-34	36.1	39.7	43.8
	35-44	23.3	24.4	26.4
	45-54	18.0	17.8	17.0
	55-64	14.3	12.1	9.3
Gender	Female	47.8	43.4	41.8
	Male	52.2	56.6	58.2
Race/Ethnicity	Non-Hispanic White	62.2	63.5	66.7
	Non-Hispanic Black	26.6	25.6	23.3
	Hispanic	4.3	4.1	3.6
	Others	6.8	6.8	6.3
Eligibility	Pregnant Women	6.7	5.9	5.6
	Children	7.5	5.7	3.3
	Disabled Adults	17.7	17.9	18.4
	Non-Disabled Adults	17.8	15.6	13.8
	Expansion Adults	50.2	54.9	58.8
Living Area	missing category	0.4	0.3	0.3
	Urban	83.2	82.4	82.4
	Rural	16.4	17.3	17.9

Pooled characteristics of Medicaid enrollees with one, two, or three or more SUDs, 2018

	Number of SUDs	1 SUD	2 SUDs	3 or more SUDs
	Overall, row %	**59.1**	**21.5**	**19.4**
Comorbidities	Anxiety disorder, column (%)	36.2	45.3	59.0
	Mood disorder	39.9	51.3	66.4
	Schizophrenia and other psychotic disorders	6.7	10.8	19.3
	Post Traumatic Stress Disorder (PTSD)	7.9	11.9	19.4
	Hepatitis C (HCV)	7.1	13.3	24.5
	Human Immunodeficiency Virus (HIV)	1.3	1.9	2.9
	Hepatitis B (HBV)	0.6	1.1	2.3
	Abscess	0.1	0.2	0.7
	Osteomyelitis	0.5	1.1	2.0
	Endocarditis	0.2	0.6	1.8
	Soft skin tissue infections	10.9	15.0	22.1

The prevalence of medical comorbidities common among those with injection drug use was also markedly higher with increased number of substance use disorders. The prevalence of hepatitis C virus was three times higher, osteomyelitis was four times higher, and endocarditis was nine times higher among those with three or more substance use disorders compared to those with a single diagnosed substance use disorder.

Conclusions

Medicaid officials have made concerted efforts to improve access to high-quality treatment for opioid use disorder in recent years. Findings from analyses of four states' Medicaid data suggest that states' focus on opioid use disorder is understandable given that it remains the most prevalent of all diagnosed substance use disorders. We also found that four in ten Medicaid enrollees with substance use disorders have polysubstance use disorders and that these enrollees had increased risk of several mental health and medical comorbidities. The complexity of treating Medicaid enrollees with polysubstance use disorders, mental health conditions, infectious diseases and medical complications common in those with injection drug use has implications both for Medicaid expenditures, and for the way states design delivery systems for this vulnerable population.