

Prescription Opioid Deaths in a State Medicaid Population, 2012-2014

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Background

- From 2000-2014 in the United States, overdose deaths involving opioids increased by 200%¹
- Evidence suggests that Medicaid members have higher mortality rates with use of prescription opioids compared to individuals not enrolled in Medicaid²
- Little is known about patterns of pharmacy and medical utilization prior to overdose death

Objectives/Specific Aims

- To describe medical utilization, opioid use, demographic and clinical characteristics, and substances involved in cause of death for a state's Medicaid population who died of unintentional opioid prescription drug overdose from 2012-2014

Methods

- This cross-sectional study combined medical examiner data from a state's Fatal Unintentional Poisoning Surveillance System with the state's Medicaid pharmacy and medical claims data
- Decedents who were Medicaid eligible during the year of death and had an opioid recorded in cause of death were included for analysis
- Demographics, pharmacy and medical utilization, and comorbidities related to addiction^{3,4} were examined in the year prior to the date of death
- Prevalence of substances attributed to death from single or multidrug causes was gathered from medical examiner data and were reported as percentages of total substances and percentages of deaths
- Demographics for the state Medicaid population were abstracted from eligibility files and the population was defined as those Medicaid-eligible at any time during 2012 to 2014
- Cases per 100,000 person years were estimated by dividing number of deaths by total eligible person-years (PY) in the general state Medicaid population during the same time period and multiplying by 100,000

Results

- Medicaid decedents were generally middle aged (age 35-64), female (59.7%), and White (82.9%) race (Table 1)
- Compared to the general state Medicaid population, death rates were highest among the 35-44 (41.4 deaths/100,000 PY), 45-54 (72.8 deaths/100,000 PY), and 55-64 (48.0 deaths/100,000 PY) age groups (Table 1)
- In the year prior to death, nearly 30% of decedents had ≥2 ER visits, 54.8% did not have any paid opioid prescription claim, and 38.5% had three or more benzodiazepine claims (Table 2)
- Decedents had a mean daily morphine equivalent dose of 81.8 mg and mean days with opioid and benzodiazepine overlap of 54.1 days in the 365 days prior to death (Table 2)
- Among decedents, 63.1% had a mental health related diagnosis, 51.1% had a comorbid non-opioid substance use disorder, 16.3% were diagnosed with opioid dependence or abuse, and 40.3% were diagnosed with a non-motor vehicle form of trauma (Data not shown)
- Oxycodone (17.3%), hydrocodone (14.8%), alprazolam (9.8%), morphine (8.2%), methadone (7.3%), and fentanyl (5.4%) were highest among the 1,006 substances involved among the 491 deaths (Figure 1)

Table 1. Baseline characteristics of unintentional opioid prescription overdose deaths, 2012-2014

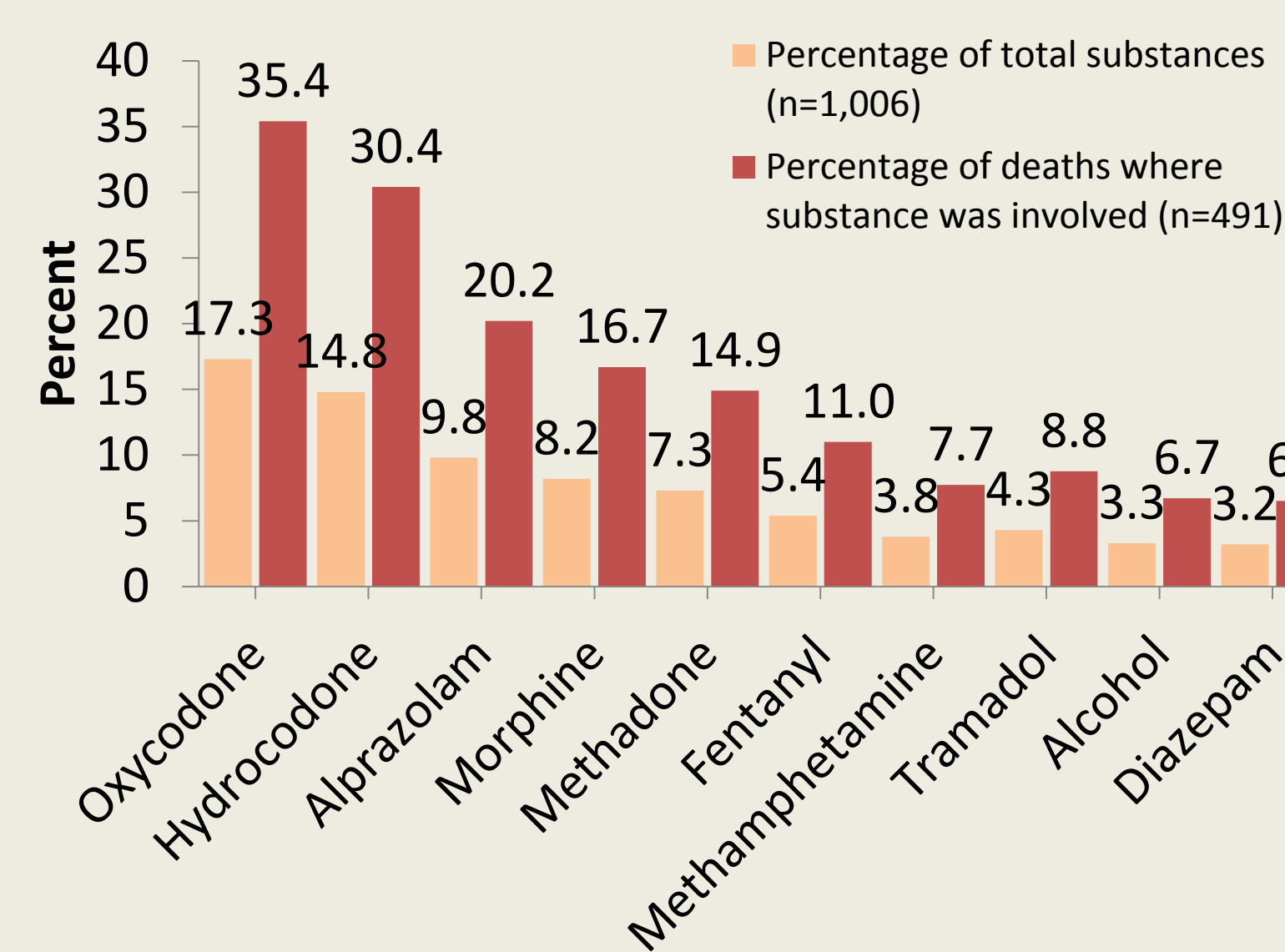
	General state Medicaid population, % (n=1,688,212)	Decedents, % (n=491)	Total Deaths per 100,000 person-years
Age years			
≤17	46.5	1.4	0.45
18-24	11.4	4.1	7.4
25-34	13.5	20.8	27.3
35-44	8.8	18.5	41.4
45-54	6.8	34.8	72.8
55-64	5.2	16.9	48.0
≥65	7.8	3.5	4.6
Female			
	55.3	59.7	16.6
Race			
White	68.0	82.9	18.9
Black or African American	11.2	4.1	5.4
American Indian or Alaskan Native	9.9	9.6	15.1
Asian	1.5	<1	N/A
Native Hawaiian or Other Pacific Islander	<1	<1	N/A
Mixed	9.2	3.5	5.8
Residence type			
Unknown	2.6	<1	N/A
Metropolitan	59.3	60.1	15.8
Micropolitan	21.5	24.0	17.2
Rural	16.7	15.5	13.9
Region			
Unknown	2.4	<1	N/A
Northwest	7.8	4.9	10.1
Southwest	9.6	9.2	15.0
Northeast	12.8	17.7	19.7
Southeast	13.8	17.1	17.7
Metropolitan Area 1	32.0	28.1	14.1
Metropolitan Area 2	21.6	22.6	16.7

Table 2. Medical and pharmacy utilization during the 365 days prior to unintentional opioid prescription overdose deaths in a state Medicaid, 2012-2014

	Decedents, % (n=491)
All-cause hospitalizations	
None	75.8
1	15.5
≥2	8.8
All-cause ER visits	
None	61.5
1	10.4
≥2	28.5
Previously in state Medicaid's Patient Review and Restriction Program	
	10.4
Opioid prescription claims per decedent	
None	54.8
1-3	7.5
4-6	5.9
7-9	5.5
≥10	26.3
Cumulative days' supply, mean (SD)	
	284.2 (235.16)
Daily morphine milligram equivalents, mean (SD)	
	81.8 (92.83)
Benzodiazepine prescription claims per decedent	
None	51.9
One	4.9
Two	4.7
Three or greater	38.5
Cumulative days' supply, mean (SD)	
	216.54 (146.18)
Overlapping opioid and benzodiazepine prescriptions	
Members with overlap, %	
	32.2
Cumulative days of overlap, mean (SD)	
	54.1 (105.6)

Results Cont.

Figure 1. Top 10 substances implicated in cause of overdose death, 2012-2014



*Decedents may have more than one substance listed in cause of death.

Limitations

- Patterns of pharmacy and medical utilization outside Medicaid claims were not available to be analyzed
- Medical examiner data do not contain information on source of drugs, and thus, the study was unable to determine whether the decedent's medication was obtained legally or from diversion
- Provider coding practices may underestimate prevalence of comorbidities, especially among substance use disorders

Conclusions

- Opioid death rates were highest among current or recent Medicaid enrollees aged 35-64
- Over half of decedents did not have a Medicaid-reimbursed prescription claim for an opioid in the year prior to death
- Non-opioid substance abuse, mental health disorders, and trauma diagnoses were highly prevalent among decedents
- The top substances implicated in death included opioids and benzodiazepines
- These findings may help to identify members at risk of overdose death

References

- Rudd RA, Aleshire N, Zibbell JE, Gladden RM. Increases in drug and opioid overdose deaths - United States, 2000-2014. *MMWR*. 2016; 64(50):1378-82
- Fernandes JC, Campana D, Harwell TS, Helgerson SD. High mortality rate of unintentional poisoning due to prescription opioids in adults enrolled in Medicaid compared to those not enrolled in Medicaid in Montana. *Drug Alcohol Depend*. 2015;153:346-349.
- White AG, Birnbaum HG, Mareva MN, et al. Direct costs of opioid abuse in an insured population in the United States. *J Manag Care Pharm*. 2005;11(6):469-479.
- Ghate SR, Haroutianian S, Winslow R, McAdam-Marx C. Cost and comorbidities associated with opioid abuse in managed care and Medicaid patients in the United States: a comparison of two recently published studies. *J Pain Palliat Care Pharmacother*. 2010;24(3):251-258.

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