



Opioid Poisonings & Polysubstance Abuse

in Volusia, Lake, Flagler, Putnam and Seminole Counties



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Study Aims

- ▶ This study aims to:
 - ▶ Describe the prevalence of opioid related poisonings in Volusia, Lake, Flagler, Putnam and Seminole Counties
 - ▶ Determine whether there is a significant cost difference associated with different opioid poisoning hospitalizations
 - ▶ Determine whether there is a significant difference between types of opioid poisonings and the level of polysubstance abuse

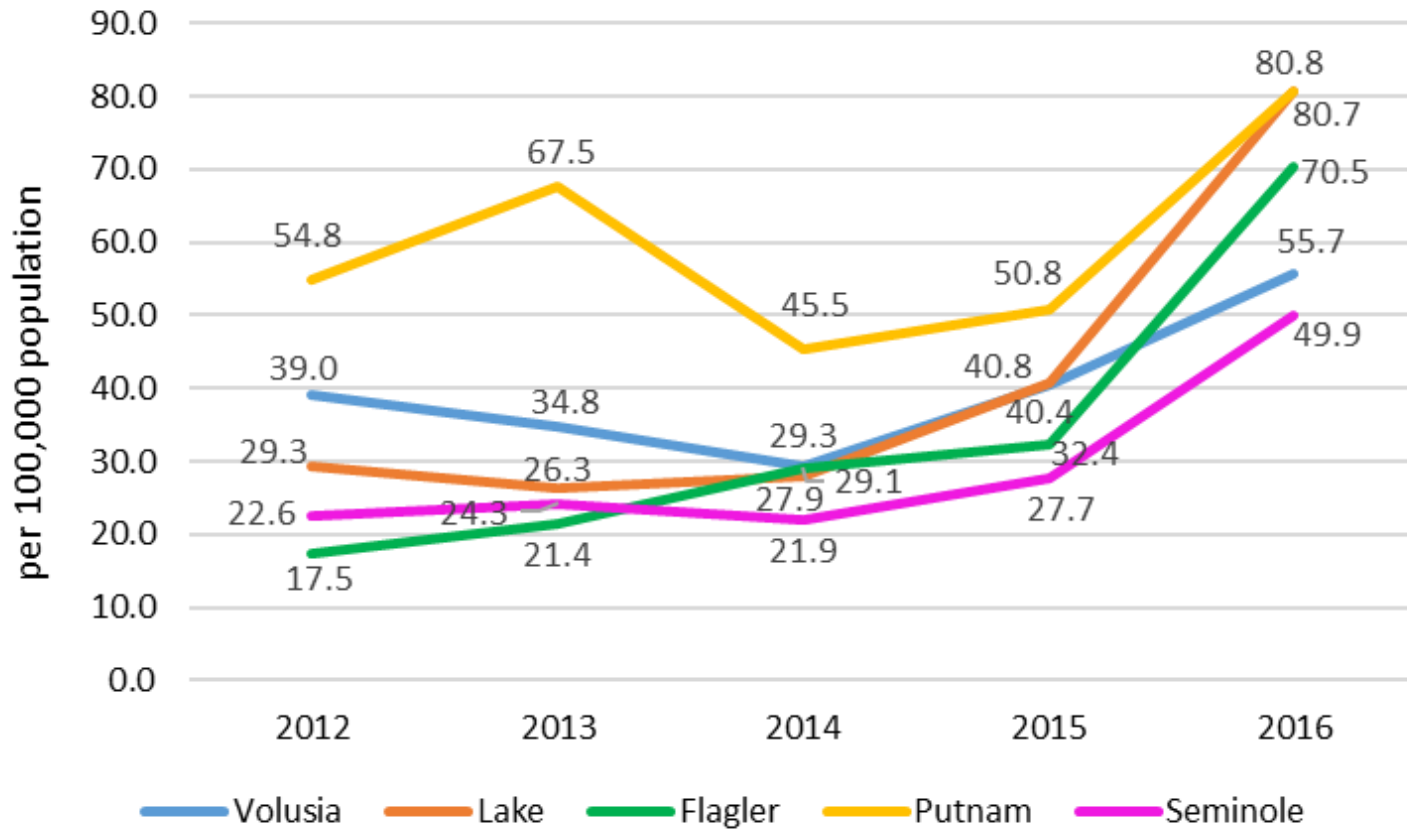
Background

- ▶ Opioids—prescription and illicit—are the main driver of drug overdose deaths
 - ▶ Opioids were involved in 42,249 deaths in 2016
 - ▶ Opioid overdose deaths were five times higher in 2016 than 1999
- ▶ In May of 2017, Governor Rick Scott officially declared a state of emergency in response to the state’s epidemic of opioid addiction
 - ▶ The November 2017 report from the Florida Medical Examiner’s Commission determined that there were 5,725 opioid-related deaths (an increase of 35% in Florida from 2015 to 2016)
- ▶ Opioid abuse is often associated with abuse of other drugs and other drug related disorders
 - ▶ In our study area we found that residents hospitalized with opioid poisoning as their primary diagnosis were at 8.215 greater odds for engaging polysubstance abuse
 - ▶ Understanding whether there are differences in polysubstance abuse patterns between types of opioid poisonings will create a more holistic picture of the opioid epidemic

Opioid Types

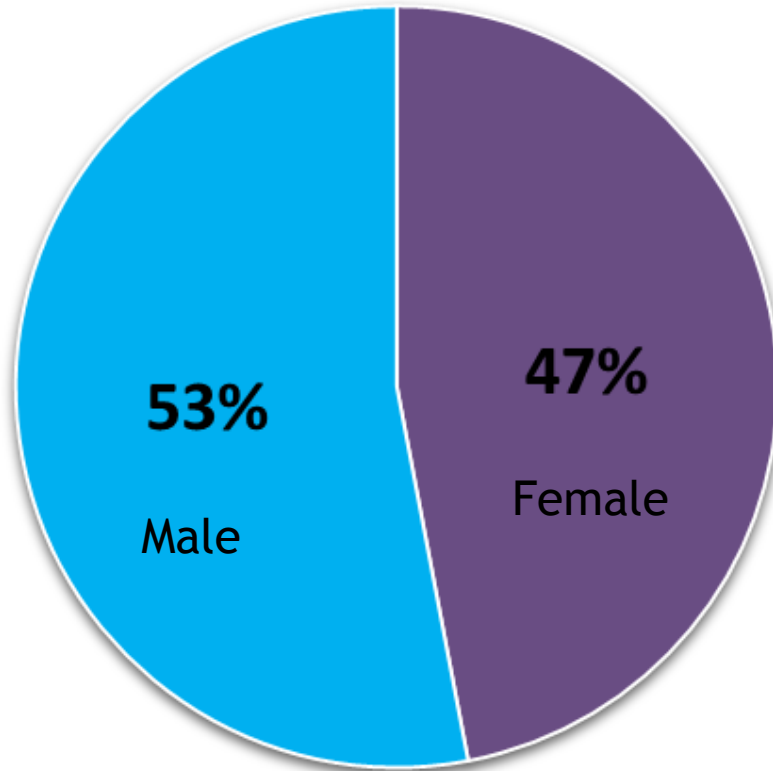
- ▶ Opioids are a class of drugs that include the illegal drug heroin, synthetic opioids such as fentanyl, and pain relievers available legally by prescription, such as oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, morphine, and many others.
- ▶ CDC looks at four categories of opioids:
 - ▶ Natural opioid analgesics/ semi-synthetic opioid analgesics
 - ▶ Methadone
 - ▶ Heroin
 - ▶ Synthetic opioid analgesics
- ▶ Due to coding limitations, in this study, opioid poisonings were collapsed into three groups; heroin poisoning, methadone poisoning and prescription drug poisoning.

Opioid Poisoning Hospitalization Diagnosis Rates, 2012-2016



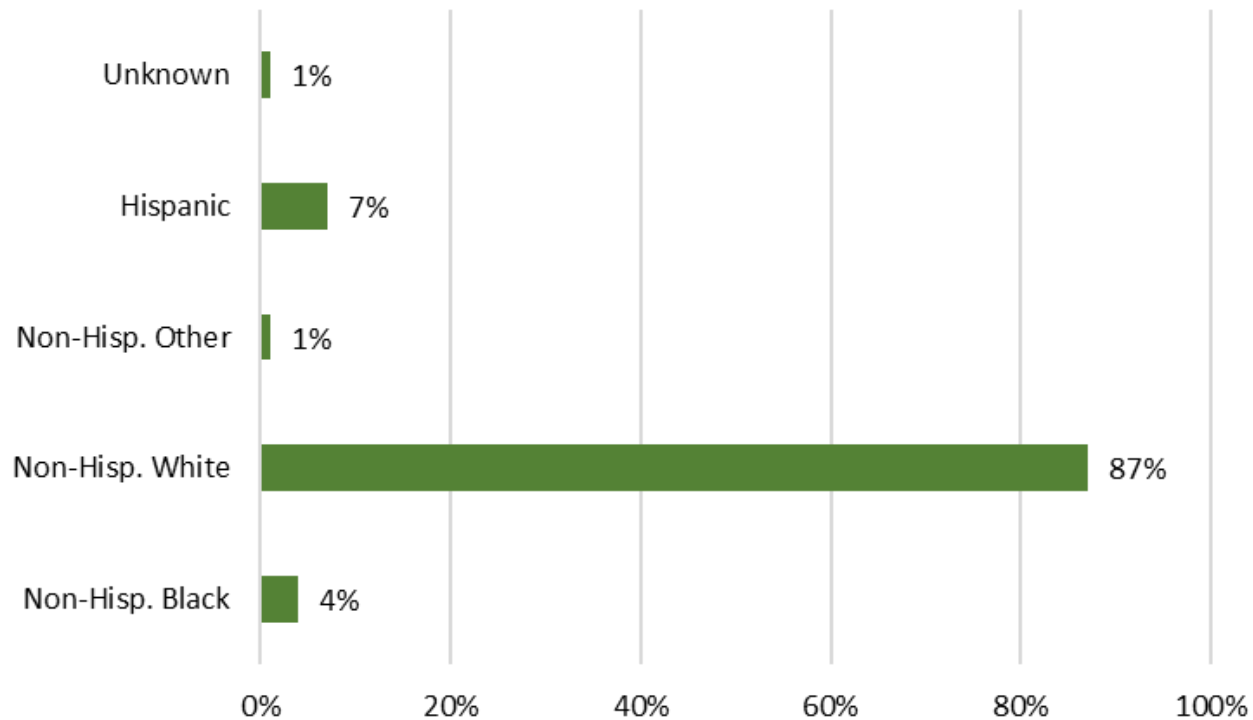
Demographics

Opioid Poisoning Principle Diagnosis by Gender, 2016



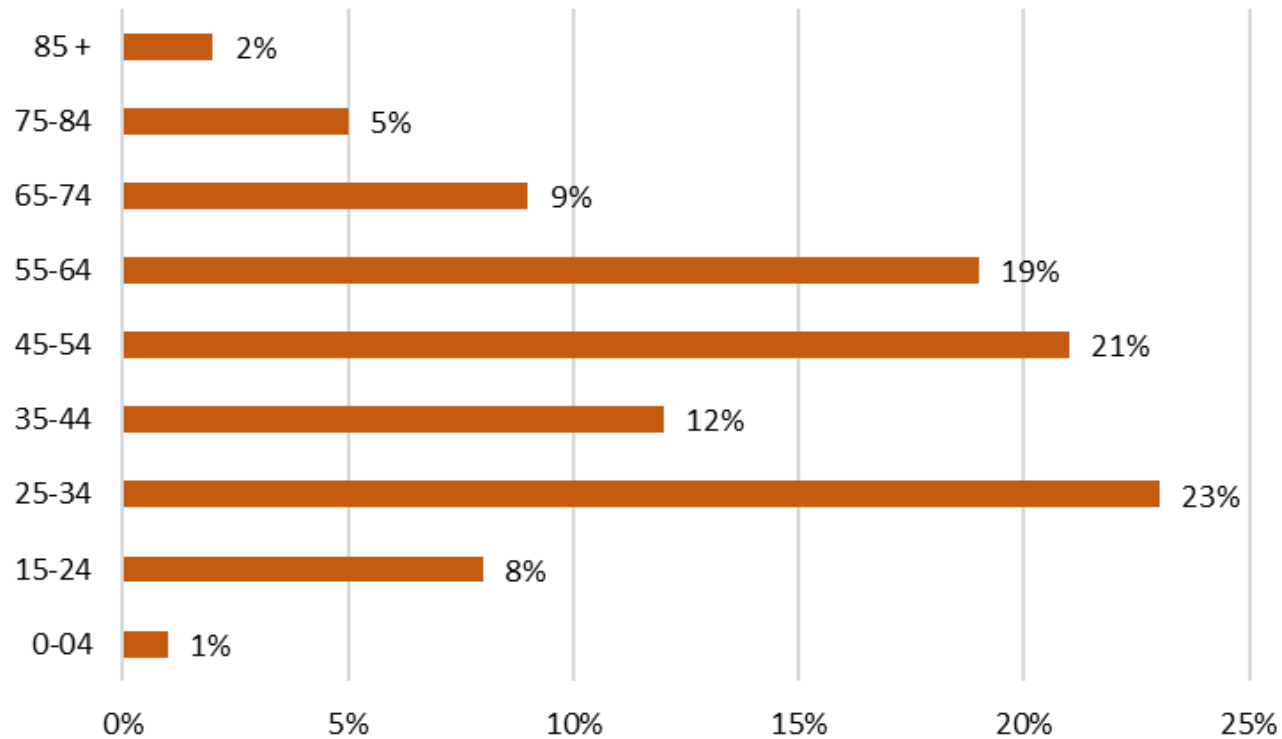
Demographics

Opioid Poisoning Principle Diagnosis by Ethnicity/Race, 2016



Demographics

Opioid Poisoning Principle Diagnosis by Age, 2016



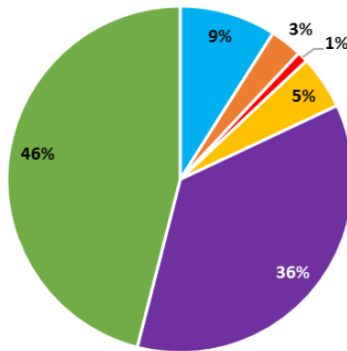
Methods

- ▶ The Florida Agency for Health Care Administration Hospitalization Data were used to answer the following research questions:
 - ▶ Does opioid poisoning type impact the odds of engaging in polysubstance abuse?
 - ▶ Is there a statistically significant difference in average total charges between types of opioid poisonings?
- ▶ Patients with a principle diagnosis of poisoning from methadone, prescription opioids or heroin who had a secondary diagnosis of a drug related disorder or opioid poisoning were identified as polysubstance abusers
- ▶ IBM's Statistical Package for the Social Sciences (SPSS) was used to conduct data analysis
 - ▶ The odds ratio statistic was used to assess risk estimates between opioid poisoning types
 - ▶ The variable "total charges" was used to assess healthcare cost
 - ▶ A One-way Analysis of Variance was conducted to determine whether or not the differences in average total charges by opioid user type were statistically significant

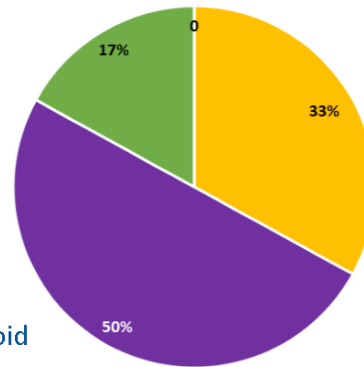
Results

Polysubstance Abuse by Opioid Poisoning Type, 2016

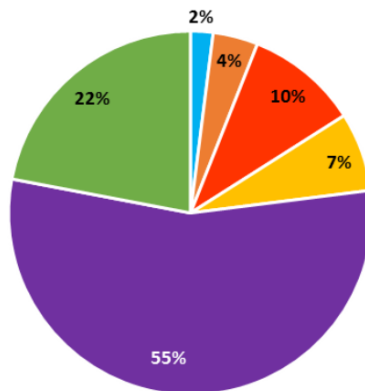
Prescription Poisoning



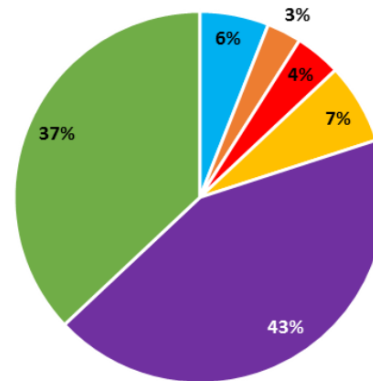
Methadone Poisoning



Heroin Poisoning



All Opioid Poisonings



- Alcohol
- Cannabis
- Cocaine
- Another Opioid
- Other Drug
- Polysubstance Abuse not present

Results

Polysubstance Abuse Risk Estimate by Opioid Poisoning Type, 2016

Methadone to Prescription					
Opioid Poisoning Type		No Polysubstance Abuse	Polysubstance Abuse	Total	Risk Estimate Value
Prescription	Count	70	81	151	4.321
	Percent	46.4%	53.6%	100.0%	
Methadone	Count	2	10	12	
	Percent	16.7%	82.3%	100.0%	

Methadone to Heroin					
Opioid Poisoning Type		No Polysubstance Abuse	Polysubstance Abuse	Total	Risk Estimate Value
Heroin	Count	18	65	83	1.385
	Percent	21.7%	78.3%	100.0%	
Methadone	Count	2	10	12	
	Percent	16.7%	82.3%	100.0%	

Results

Polysubstance Abuse Risk Estimate by Opioid Poisoning Type, 2016

Heroin to Prescription					
Opioid Poisoning Type		No Polysubstance Abuse	Polysubstance Abuse	Total	Risk Estimate Value
Prescription	Count	70	81	151	3.121
	Percent	46.4%	53.6%	100.0%	
Heroin	Count	18	65	83	
	Percent	21.7%	78.3%	100.0%	

Results

Opioid Poisoning Hospitalization Charges, 2016

	Average Prescription Opioid Charge	Average Heroin Charge	Average Methadone Charge	Average Total Charge
Volusia County	\$28,718.45	\$65,410.89	\$22,897.00	\$39,170.50
Lake County	\$29,668.20	\$23,722.29	\$18,366.00	\$27,081.04
Flagler County	\$42,893.25	\$12,108.33	\$30,464.50	\$33,876.92
Putnam County	\$27,194.33	--	--	\$27,194.33
Seminole County	\$47,462.28	\$43,512.06	\$88,916.33	\$47,435.01
All Counties	\$34,557.69	\$44,493.65	\$39,907.92	\$38,171.26

Summary

- ▶ Methadone users, followed by heroin users, are at a higher risk for engaging in polysubstance abuse when compared to prescription drug users
 - ▶ Prescription opioid poisonings made up the majority of opioid poisoning hospitalizations (61%) in the study area in 2016, but this group had the lowest percentage of polysubstance abusers (36%)
- ▶ No statistically significant differences in charges were observed between opioid poisoning types

Limitations

- ▶ Cross-sectional study design
- ▶ ICD coding limitations
- ▶ The use of a single source of data (AHCA hospitalization files)
- ▶ The use of the principle diagnosis as the sole indication of opioid poisoning

Future Research Recommendations

- ▶ Although there was no significant difference in charges, further analysis should control for additional diagnosis that impact the total charges incurred by a patient.
- ▶ Future research should consider socio-demographic data, and the role these factors play in increasing the risk of polysubstance abuse. This could lead to a better understanding of the root causes associated with polysubstance abuse and the interventions needed to address it.
- ▶ Using multiple data sources (Emergency Department, Emergency Medical Services, Medical Examiners etc.) would aid in better understanding the risk of polysubstance abuse between types of prescription opioids. These data sets contain variables that would allow for more specific analysis.



Special thanks to:

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Questions?

