



HHS Public Access

Author manuscript

J Public Health Manag Pract. Author manuscript; available in PMC 2025 January 01.

Published in final edited form as:

J Public Health Manag Pract. 2024 ; 30(2): E84–E93. doi:10.1097/PHH.0000000000001863.

Differences in Substance Use and Harm Reduction Practices by Race and Ethnicity – Rhode Island Harm Reduction Surveillance System, 2021–2022

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Abstract

Context: In the United States, minority populations are disproportionately affected by the overdose epidemic, have higher mortality rates, and unequal access to harm reduction and treatment services.

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Conflicts of Interest:

The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement by, CDC/HHS, or the U.S. Government. For the remaining authors, none were declared.

Objective: This analysis aims to better understand harm reduction utilization and substance use patterns among minority populations to improve overdose outreach and prevention initiatives in Rhode Island.

Design: The present analysis used data from the Harm Reduction Surveillance System from January 2021 to December 2022 (N=393). Chi-square tests and multivariable regression models were used to investigate differences in substance use behaviors by race and ethnicity.

Setting: Rhode Island.

Participants: Participants include individuals who self-reported the use of illicit drugs, currently reside in Rhode Island, and were over the age of 18.

Main Outcome Measures: Methods of drug use and uptake of harm reduction practices.

Results: Among survey participants, 41% were non-Hispanic white, 57% were aged 25–44 years, 62% identified as male, and 95% had health insurance coverage. Most participants reported smoking as their method of drug use (90%) and harm reduction practices were underutilized by all race and ethnicity groups. Fewer non-Hispanic Black participants reported carrying naloxone compared to the other race and ethnicity groups. Non-Hispanic Black and Hispanic participants were significantly less likely to inject drugs compared to non-Hispanic white participants (AOR: 0.14, 95% CI: 0.04–0.45; AOR: 0.40, 95% CI: 0.18–0.90).

Conclusions: Smoking was the most common self-reported method of substance administration for all participants, whereas injection was more prevalent among non-Hispanic white participants. There is a continued need for minority-led and culturally informed harm reduction and treatment services for minority populations.

Keywords

Overdose; Harm Reduction; Race; Disparity; Prevention

Introduction

In the United States (US), racial and ethnic minority groups have been disproportionately affected by the opioid epidemic, including disparities accessing treatment and harm reduction supplies, involvement with the criminal legal system, and higher overdose mortality rates.^{1–4} The systemic effects of racial inequity and the widespread contamination of fentanyl in the illicit drug supply have been widely attributed to a rise in drug overdose deaths among minority populations. According to a recent report from the Centers for Disease Control and Prevention (CDC), drug overdose deaths in the US increased 44% among non-Hispanic Black and 21% among Hispanic individuals from 2019 to 2020.⁴ This trend was also observed in Rhode Island (RI) – from 2019 to 2022, fatal overdose rates have increased among all people of color and have slightly decreased among non-Hispanic white individuals, with the highest rates of fatal overdose among non-Hispanic Black and Hispanic individuals.⁵ A multitude of factors have contributed to the rise in overdose fatalities in RI, including polysubstance use, expansion of fentanyl in the illicit drug supply, and worsened circumstances due to the COVID-19 pandemic, such as loss of employment, increased isolation, and unstable housing.⁶ These issues have been especially prevalent

among marginalized groups, demonstrating the continued need for targeted prevention efforts and racial health equity guided harm reduction initiatives.

People who use drugs are best positioned to reduce harms associated with drug use. Harm reduction recognizes personal autonomy, provides tools and information to influence positive change, and aims to empower people who use drugs.⁷ Examples of harm reduction interventions specifically targeted towards safer substance use include increasing access to naloxone and treatment, providing materials for self-testing drugs for fentanyl, providing sterile syringes and smoking supplies, and encouraging individuals to use with others. The Rhode Island Governor's Overdose Task Force, comprised of various public health agencies throughout the state of RI, released an action plan with the overall long-term goal of reducing overdose deaths by one-third within three years, using four key strategies aimed towards improving treatment, overdose rescue, prevention, and recovery. Broadly, these strategies utilize harm reduction interventions such as naloxone and safer substance use kit distribution, expanding recovery and treatment supports, and increasing harm reduction knowledge among people who use drugs.⁸ While these strategies are associated with reduced mortality and positive public health impacts, disparities continue to exist within these efforts.^{9,10} Current research suggests that existing harm reduction programs may lack the cultural sensitivity and capacity to engage minority populations, including lack of stimulant treatment harm reduction approaches, minimal safer smoking supplies, limited minority peer recovery and support specialists, and significant stigma and racial discrimination when seeking healthcare/treatment access.¹⁰⁻¹⁵

In 2020, the Rhode Island Department of Health (RIDOH) began working with Miriam Hospital to survey individuals who use illicit drugs in RI and created the RI Harm Reduction Surveillance System (HRSS). The aim of this paper was to better understand differences in the utilization of harm reduction practices by race and ethnicity among Rhode Islanders who use drugs, identify health disparities, and provide insights to allow RI overdose prevention programs, medical institutions, and RIDOH to better inform equitable harm reduction outreach efforts for racial and ethnic minority groups.

Methods

Sample

Data collection and subject recruitment for the HRSS began in January 2021 and is ongoing. This analysis used survey data from January 2021 to December 2022. Quantitative surveys were completed by participants, with the option to write in responses if none applied to them or to provide additional context. The surveys were primarily administered in person, however due to COVID-19 restrictions the first 100 participants were interviewed over the phone. To be eligible to participate in this surveillance system, respondents had to be at least 18 years of age, a current resident of RI, able to provide verbal consent, and self-report use of illicit drugs (other than only marijuana) or unprescribed medications in the prior 30 days. All participant responses remain anonymous. Race and ethnicity were self-reported by participants. Participants were primarily recruited through targeted canvassing at local syringe distribution programs, harm reduction outreach programs, and street outreach in

overdose hotspots throughout RI. Participants were compensated 25 dollars cash upon completion of the survey.

Data Collection

The HRSS collects information on demographics, substance use behaviors, access to health services, experience with overdose, and suspected exposure to fentanyl in the past year. Additionally, the survey aims to identify participants' thoughts about overdose prevention and Overdose Prevention Centers. The HRSS survey data was collected and extracted through the Research Electronic Data Capture (REDCap) tool. This work is considered public health surveillance and was deemed exempt by the RIDOH Institutional Review Board (IRB) and approved by the Miriam Hospital IRB.

Analysis

For this analysis, race and ethnicity variables were collapsed into four categories: non-Hispanic white, non-Hispanic Black, Hispanic, and Other. Participants who selected their race as American Indian/Alaska Native, Asian, Pacific Islander, two or more races, or Other, were grouped into the overall Other category of the race/ethnicity variable to account for small numbers when performing the statistical tests and to follow RIDOH's small numbers policy.¹⁶ Descriptive statistics were initially generated to compare demographics, substance use behaviors, and harm reduction practices by race and ethnicity.

To evaluate factors associated with mode of use (injection and smoking), bivariate associations were performed by race and ethnicity groups, age, sex, and specific substance use in the last 30 days. Race and ethnicity were selected *a priori* to be included as the key independent variable in the final model. All variables with significant associations in the bivariate logistic regression models were included as covariates in the initial multivariable regression models. Using a backward stepwise regression approach, the final multivariable logistic regression models were created to evaluate factors associated with routes of substance administration. The data cleaning and analysis for this project was conducted using SAS software Version 9.4 for Windows (SAS Institute Inc., Cary, NC, USA).

Results

Survey responses were collected from 393 unique individuals between January 1, 2021, to December 31, 2022. Overall, 24.4% of participants identified as Hispanic, 18.6% non-Hispanic Black, 41.2% non-Hispanic white, and 15.8% Other. Most participants surveyed were age 25–44 years (57.5%), identified as male (62.1%), and were covered by Medicaid insurance (89.7%; Table 1). Only 5.1% of respondents indicated they had no health insurance at the time of the survey. The substances most participants reported using within the last 30 days were crack cocaine (71.2%), marijuana (69.0%), cocaine powder (44.0%), and fentanyl (34.6%).

In the bivariate analysis, significant differences by race and ethnicity were found for many demographic and substance use-related factors. There were significant differences among race and ethnicity groups by age ($p < 0.01$), whereas sex, gender identity, and insurance type did not differ significantly by race and ethnicity (Table 1). Significant differences by race

and ethnicity were observed by level of alcohol use ($p < 0.01$). Among non-Hispanic Black participants, 49.3% reported the use of alcohol four to seven times per week, which was about 12% higher than the other race and ethnicity groups (49.3% vs. 23.5%–37.1%). The use of prescribed and non-prescribed drugs varied by race and ethnicity, with significant differences in the reported use of cocaine powder, fentanyl, opioid pain medication, methamphetamine, prescribed gabapentin, and prescribed methadone (all $p < 0.01$). Non-Hispanic white individuals reported a notably higher frequency of fentanyl (48.1%), methamphetamine (36.4%), prescribed gabapentin (21.0%), and prescribed methadone (34.6%) use compared to other race and ethnicity groups. Lastly, the non-Hispanic Other race group reported a frequency of cocaine powder use almost 20% higher than the other race and ethnicity groups (62.9% vs. 38.3%–43.7%).

Overall, the most common method of drug use was smoking (90.1%), followed by oral use (52.4%), nasal use (46.3%), and injection (31.8%; Table 2). The proportion of participants who reported injecting drugs was significantly different by race and ethnicity ($p < .001$). Almost half of the non-Hispanic white respondents reported injecting drugs (48.2%), compared to a frequency of 26% or less among the other race and ethnicity groups. Harm reduction practices, including using fentanyl test strips, starting with a low dose, using with others, taking turns (when using with others), and carrying naloxone were underutilized across all race and ethnicity groups. Overall, 60.5% of participants reported they were likely or very likely to use an overdose prevention center if it was made available, with no significant differences by race and ethnicity.

Among respondents who indicated they use opioids, a majority have witnessed an overdose in the past 12 months (79.0%) and currently carry naloxone (72.8%), compared to those who do not use opioids, where 48.7% have witnessed an overdose and 60.0% carry naloxone (Table 3). Among those who reported the use of opioids, non-Hispanic white respondents had the highest proportion of individuals who had witnessed an overdose (85.2%) and carried naloxone (80.0%) compared to the other race and ethnicity groups. Conversely, the Other and non-Hispanic Black race groups who reported the use of opioids had much lower frequencies of having witnessed an overdose (65.8%, 71.1%) and carrying naloxone (63.2%, 57.9%) compared to the Hispanic and non-Hispanic white race and ethnicity groups.

The multivariable regression model results confirmed the significant associations by methods of drug use observed in the bivariate analysis after controlling for confounders. Non-Hispanic Black (AOR: 0.14, 95% CI: 0.04–0.45), Hispanic (AOR: 0.40, 95% CI: 0.18–0.90), and Other (AOR: 0.23, 95% CI: 0.09–0.62) participants were significantly less likely to inject drugs than non-Hispanic white participants, after controlling for heroin, fentanyl, methamphetamine, and benzodiazepine use in the past 30 days (Table 4). Modeling smoking as the route of substance administration did not reveal any significant associations by race and ethnicity after controlling for marijuana and crack cocaine use in the past 30 days (Table 4).

Discussion

The results from this analysis provide a greater understanding on the differences in substance use and harm reduction practices by race and ethnicity among Rhode Islanders and offer several key insights that can be used to inform prevention work. First, most participants across racial and ethnic groups reported smoking (90.1%). To ensure equity in access to harm reduction supplies across racial and ethnic groups, this finding highlights the importance of safer smoking kits both to decrease harms from smoking and to allow outreach workers to create connections with all individuals who use substances. Second, non-Hispanic Black, Hispanic, and Other respondents were less likely to report having naloxone compared to non-Hispanic white individuals, even after limiting results to only those who use opioids. Given that 80% of individuals who use opioids reported witnessing an overdose in the prior 12 months (48.7% among individuals who do not use opioids), it is imperative to rapidly address the lack of naloxone possession among all groups given the high likelihood of witnessing an overdose, regardless of substance type used. Third, engagement in harm reduction practices was low among all respondents, regardless of race and ethnicity, providing further evidence that additional education and outreach is urgently needed to increase uptake of these practices and reduce overdose risk. These findings emphasize the importance of keeping racial health equity at the forefront of harm reduction interventions to reduce fatal and non-fatal overdose rates, especially among racial and ethnic minority groups in RI.

Among those surveyed, most respondents (90.1%) reported smoking substances while only 31.8% of individuals reported intravenous drug use, which was largely limited to non-Hispanic white participants. Increasing awareness of safer smoking kits within syringe service programs (SSPs) and other harm reduction services could help increase engagement among people who do not regularly use opioids and are less likely to perceive themselves at risk of overdose. This promotes racial equity, as the data indicate that more people of color in RI smoke substances rather than inject. It may also support individuals' transition from injecting to smoking. Switching to a non-injectable route of drug administration, such as smoking, has led to reduced stigma associated with doing drugs, lower economic impact, and positive health benefits among people who use drugs.^{17,18} These findings suggest that harm reduction organizations focusing mainly on syringe distribution likely primarily reach and benefit non-Hispanic white people who use opioids. SSPs have proven to be successful in getting people who inject drugs (PWID) to enter treatment, with SSP users five times more likely to enter drug treatment than those who did not use SSPs, again demonstrating the importance of promoting safer smoking supplies to extend the reach of these programs to individuals of all races and ethnicities.¹⁹ To build rapport between harm reduction organizations and as many people who use substances in RI as possible, an array of safer use supplies is indicated, including safer smoking kits.

Nationally, minority populations, specifically Black individuals, have been historically underserved in overdose prevention programs and naloxone training and possession. Our findings were consistent with the results of a prior study that evaluated engagement in overdose prevention among PWID, and showed that Hispanic and non-Hispanic Black PWID were less likely than non-Hispanic white PWID to have received overdose prevention

training and have used or received naloxone.²⁰ A recently published study evaluating factors associated with naloxone access by race and ethnicity in New York City also discovered gaps in naloxone training and possession, and found Black participants were less likely than white participants to be trained in naloxone administration and currently have naloxone.²¹ All the aforementioned results align with the finding from the present work, where the highest frequency of naloxone possession was among non-Hispanic white participants who use opioids, and the group with the lowest reported utilization of harm reduction measures and naloxone possession were non-Hispanic Black participants. This may be rooted in the common misconception among individuals who do not use opioids that they are immune from opioid exposure and do not need to carry naloxone. However, data from testRI, a study that tests the local drug supply in RI, has provided local evidence of a fentanyl contaminated drug supply spanning across all substance classes including stimulants.²² This contamination data coupled with the 48.7% of survey respondents who do not use opioids reporting witnessing an overdose in the past 12 months reiterates the importance of carrying naloxone regardless of drug choice. To protect people who use drugs amidst the fentanyl contamination in the illicit drug supply, the expansion of overdose response education and naloxone training for underserved populations is needed. Additionally, addressing and correcting the misconception that only people who use opioids need to carry naloxone must be prioritized within overdose prevention campaigns in RI and inform targeted outreach towards Black, Indigenous, People of Color (BIPOC) individuals who use drugs other than opioids.

With 95.2% of all participants reported being insured, and 72.0% taking a prescribed medication in the prior 30 days, this population likely has frequent interaction with the healthcare system. This may be indicative of a missed opportunity for timely intervention to provide linkage to care and promote harm reduction education among individuals who use illicit substances. Furthermore, a much larger proportion non-Hispanic white participants reported receiving treatment for substance use disorders compared to all other race and ethnicity groups. This aligns with statewide data which show rates of methadone receipt have been consistently twice as high among non-Hispanic white individuals when compared to Hispanic and non-Hispanic Black RI residents.²³ These findings reveal a disparity in treatment for BIPOC individuals who use substances overall. The authors of a qualitative study examining substance abuse stigma and racial discrimination found that Black males perceived their substance use problems were viewed unfavorably compared to their white counterparts, which could heavily impact substance use treatment engagement.²⁴ This has been complemented by other work which highlighted a lack of cultural competence in treatment centers and a significant need for minority-led recovery centers and counselors.²⁵ Additional research into the perception of treatment services among BIPOC individuals, the importance of person-centered and culturally tailored treatment options, and how to incorporate treatment options for people who do not use opioids is needed to positively impact a much larger proportion of people who use substances in RI.

To address some of the health disparities in overdose by race and ethnicity, the Rhode Island Department of Health Drug Overdose Prevention program has invested in several statewide programs, including: 1) contracting with community-based organizations to deploy peers with lived experience to communities experiencing high rates of overdose, with particular

focus on engaging populations who are historically underserved, providing harm reduction resources, referral to treatment and care as appropriate, referral to basic needs, and provision of harm reduction supplies and education; 2) establishing a statewide system for the distribution and tracking of intra-nasal naloxone and overdose prevention training that prioritizes the expansion of culturally competent overdose prevention education and materials to BIPOC communities, recreational users, and other PWUD disproportionately impacted by fatal overdoses; and 3) partnering with The Miriam Hospital Preventing Overdose and Naloxone Intervention program to provide harm reduction supplies to community-based organizations engaged in outreach work to ensure that people who use drugs have access to intra-muscular naloxone, fentanyl testing strips, safer smoking kits, safer snorting kits, and wound care kits, free of charge.

Certain limitations should be considered when conceptualizing the results of this analysis. Surveyed participants were recruited as part of a convenience sample and from primarily high-risk populations, so the results are not generalizable to all Rhode Islanders who use substances. Second, to better highlight BIPOC experiences, the survey oversamples people of color and is therefore not proportional to the state demographic breakdown. Third, because the survey was interviewer administered, social desirability and recall biases potentially impacted responses.

In conclusion, to ensure outreach workers can provide services to all people who use substances, safer smoking kits should be an integral part of harm reduction outreach initiatives. Harm reduction supplies and naloxone should continue to be distributed to all substance users, as all individuals were likely to witness an overdose, regardless of opioid use or demographic characteristics. To better engage, educate, and recognize BIPOC individuals who use substances in RI, modifications are required to incorporate more widely available and accessible person-centered, minority-led, and culturally informed harm reduction initiatives and treatment programs for this population.

Source of Funding:

Ms. McKenzie and Ms. McKee are partially supported by the COBRE on Opioids and Overdose P20GM125507. Ms. Rodriguez was supported by the Centers for Disease Control and Prevention (CDC) of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling \$9,087,646 with 100% funded by CDC/HHS.

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Implications for Policy and Practice

- To equitably serve all populations that use substances, safer smoking kits should be provided alongside naloxone, needles, fentanyl test strips, and other harm reduction materials.
- Engagement in harm reduction practices was low among all respondents, regardless of race and ethnicity, providing further evidence that additional education and outreach is urgently needed to increase uptake of these practices and reduce overdose risk.
- Minority individuals were less likely to report having naloxone, and roughly 50% of non-opioid users reported witnessing an overdose in the prior 12 months, highlighting the need to rapidly address the lack of naloxone possession among all groups given the high likelihood of witnessing an overdose, regardless of substance type used.

Table 1.

Descriptive Characteristics of Study Participants by Race and Ethnicity

	Race and Ethnicity					p-value
	Overall (N=393) N(%)	Hispanic (n=96) N(%)	Non-Hispanic Black (n=73) N(%)	Non-Hispanic White (n=162) N(%)	Other* (n=62) N(%)	
Demographic Characteristics						
Age (years)						
18-24	19 (4.8)	8 (8.3)	--	10 (6.2)	--	<.001
25-34	111 (28.2)	34 (35.4)	12 (16.4)	46 (28.4)	19 (30.6)	
35-44	115 (29.3)	28 (29.2)	12 (16.4)	51 (31.5)	24 (38.7)	
45-54	91 (23.2)	15 (15.6)	25 (34.2)	37 (22.8)	14 (22.6)	
55-64	47 (12.0)	10 (10.4)	18 (24.7)	16 (9.9)	--	
65+	10 (2.5)	--	5 (6.8)	--	--	
Sex						
Male	256 (65.1)	65 (67.7)	53 (72.6)	96 (59.3)	42 (67.7)	0.19
Female	137 (34.9)	31 (32.3)	20 (27.4)	66 (40.7)	20 (32.3)	
Gender identity [‡]						
Male	244 (62.1)	62 (64.6)	50 (68.5)	92 (56.8)	40 (64.5)	0.66
Female	141 (33.8)	30 (31.2)	20 (27.4)	64 (39.5)	20 (32.3)	
Non-Binary, other [‡]	8 (2.0)	--	--	6 (3.7)	--	
Alcohol use						
4-7 times/week	132 (33.6)	35 (36.5)	36 (49.3)	38 (23.5)	23 (37.1)	0.001
1-3 times/week	89 (22.6)	19 (19.8)	21 (27.8)	34 (21.0)	15 (24.2)	
1 or less per month	72 (18.3)	16 (16.7)	9 (12.3)	38 (23.5)	9 (14.5)	
None in the past 12 months	100 (25.4)	26 (27.1)	7 (9.6)	52 (32.1)	15 (24.2)	
Insurance Type						
Medicaid	329 (83.7)	85 (88.5)	61 (83.6)	132 (81.5)	51 (82.3)	0.51
Medicare	34 (8.6)	5 (5.2)	8 (11.0)	16 (9.9)	5 (8.1)	0.52
Other [§]	34 (8.6)	5 (5.2)	5 (6.8)	18 (11.1)	6 (9.7)	0.38
None	20 (5.1)	5 (5.2)	5 (6.8)	5 (3.1)	5 (8.1)	0.40
Non-Prescribed Drug						

	Race and Ethnicity					p-value
	Overall (N=393) N(%)	Hispanic (n=96) N(%)	Non-Hispanic Black (n=73) N(%)	Non-Hispanic White (n=162) N(%)	Other* (n=62) N(%)	
Marijuana	271 (69.0)	64 (66.7)	57 (78.1)	109 (67.3)	41 (66.1)	0.32
Crack	280 (71.2)	71 (74.0)	58 (79.4)	105 (64.8)	46 (74.2)	0.09
Cocaine	173 (44.0)	42 (43.7)	30 (41.1)	62 (38.3)	39 (62.9)	0.009
Heroin	99 (25.2)	25 (26.0)	16 (21.9)	45 (27.8)	13 (21.0)	0.66
Fentanyl	136 (34.6)	29 (30.2)	9 (12.3)	78 (48.1)	20 (32.3)	<.001
Buprenorphine	34 (8.6)	6 (6.2)	10 (13.7)	12 (7.4)	6 (9.7)	0.33
Opioid pain medication	72 (18.3)	20 (20.8)	24 (32.9)	20 (12.3)	8 (12.9)	0.001
Stimulants	51 (13.0)	15 (15.6)	3 (4.1)	23 (14.2)	10 (16.1)	0.09
Methamphetamine	106 (27.0)	20 (20.8)	12 (16.4)	59 (36.4)	15 (24.2)	0.004
Benzodiazepines	105 (26.7)	23 (24.0)	14 (19.2)	53 (32.7)	15 (24.2)	0.13
Gabapentin	53 (13.5)	12 (12.5)	5 (6.8)	27 (16.7)	9 (14.5)	0.23
Prescribed Medication						
Benzodiazepines	23 (5.8)	7 (7.3)	--	12 (7.4)	--	0.32
Buprenorphine	40 (10.2)	5 (5.2)	6 (8.2)	21 (13.0)	8 (12.9)	0.19
Gabapentin	57 (14.5)	8 (8.3)	11 (15.1)	34 (21.0)	--	0.009
Medical Marijuana	12 (3.0)	4 (4.2)	--	5 (3.1)	--	0.83
Methadone	80 (20.4)	13 (13.5)	--	56 (34.6)	8 (12.9)	<.001
Opioids	17 (4.3)	6 (6.2)	5 (6.8)	--	--	0.09
Stimulants	14 (3.6)	4 (4.2)	--	7 (4.3)	--	0.70
Anti-depressants	94 (23.9)	24 (25.0)	21 (28.8)	37 (22.8)	12 (19.3)	0.61
Medication for a chronic condition	175 (44.5)	44 (45.8)	40 (54.8)	66 (40.7)	25 (40.3)	0.21
None	109 (27.7)	29 (30.2)	18 (24.7)	37 (22.8)	25 (40.3)	0.06

* The Other race/ethnicity group includes American Indian/Alaskan Native, Asian, Pacific Islander, or other.

† Transgender people were categorized with their identified binary identity measure.

‡ Non-Binary, other gender identity groups includes other, non-binary, and those who preferred not to answer.

§ The Other insurance category includes Rite Care, Veterans Affairs, Indian Health Services, State Sponsored, and other options.

Table 2. Frequency of Methods of Drug Use and Harm Reduction Practices among Respondents by Race and Ethnicity

	Race and Ethnicity					p-value
	Overall (N=393) N(%)	Hispanic	Non-Hispanic Black	Non-Hispanic White	Other	
		(n=96) N(%)	(n=73) N(%)	(n=162) N(%)	(n=62) N(%)	
Methods of Drug Use*						
Injection						
Yes	125 (31.8)	25 (26.0)	8 (11.0)	78 (48.2)	14 (22.6)	<.001
No	268 (68.2)	71 (74.0)	65 (89.0)	84 (51.8)	48 (77.4)	
Smoke						
Yes	354 (90.1)	89 (92.7)	68 (93.2)	144 (88.9)	53 (85.5)	0.36
No	39 (9.9)	7 (7.3)	5 (6.8)	18 (11.1)	9 (14.5)	
Smoke (excluding marijuana mode of use)						
Yes	287 (73.0)	70 (72.9)	58 (79.4)	113 (69.7)	46 (74.2)	0.48
No	106 (27.0)	26 (27.1)	15 (20.6)	49 (30.3)	16 (25.8)	
Nasal						
Yes	182 (46.3)	47 (49.0)	39 (53.4)	63 (38.9)	33 (53.2)	0.09
No	211 (53.7)	49 (51.0)	34 (46.6)	99 (61.1)	29 (46.8)	
Oral						
Yes	206 (52.4)	45 (46.9)	33 (45.2)	95 (58.6)	33 (53.2)	0.16
No	187 (47.6)	51 (53.1)	40 (54.8)	67 (41.4)	29 (46.8)	
Harm Reduction Practices						
Use Fentanyl Test Strip						
Always	32 (8.2)	12 (12.5)	6 (8.2)	7 (4.3)	7 (11.3)	0.05
Most of the Time	20 (5.1)	8 (8.3)	--	6 (3.7)	--	
Some of the Time	72 (18.4)	25 (26.0)	9 (12.3)	27 (16.8)	11 (17.7)	
Never	266 (67.9)	51 (53.1)	54 (74.0)	119 (73.9)	42 (67.7)	
Start Low						
Always	89 (22.8)	17 (17.7)	15 (20.5)	44 (27.2)	13 (22.0)	0.30
Most of the Time	49 (12.6)	14 (14.6)	13 (17.8)	17 (10.5)	5 (8.5)	
Some of the Time	70 (17.9)	15 (15.6)	11 (15.1)	30 (18.5)	14 (23.7)	

	Race and Ethnicity					p-value
	Overall (N=393) N(%)	Hispanic (n=96) N(%)	Non-Hispanic Black (n=73) N(%)	Non-Hispanic White (n=162) N(%)	Other (n=62) N(%)	
Never	175 (44.9)	47 (49.0)	33 (45.2)	70 (43.2)	25 (42.4)	
Use with Other People						
Always	150 (38.4)	28 (29.5)	27 (37.0)	69 (42.9)	26 (41.9)	0.14
Most of the Time	86 (22.0)	21 (22.1)	11 (15.1)	39 (24.2)	15 (24.2)	
Some of the Time	110 (28.1)	30 (31.6)	22 (30.1)	42 (26.1)	16 (25.8)	
Never	41 (10.5)	15 (15.8)	12 (16.4)	9 (5.6)	5 (8.1)	
If using with others, how often take turns? [‡]						
Always	64 (18.3)	18 (22.8)	7 (11.7)	32 (20.9)	7 (12.3)	0.04
Most of the Time	65 (18.6)	7 (8.9)	12 (20.0)	35 (22.9)	11 (19.3)	
Some of the Time	80 (22.9)	17 (21.5)	9 (15.0)	39 (25.5)	15 (26.3)	
Never	135 (38.7)	36 (45.6)	31 (51.7)	44 (28.8)	24 (42.1)	
How likely to use overdose prevention center						
Very Likely	144 (39.4)	39 (44.3)	20 (29.8)	57 (37.2)	28 (49.1)	0.28
Likely	77 (21.1)	12 (13.6)	14 (20.9)	37 (24.2)	14 (24.6)	
Neutral/I don't know	22 (6.0)	--	--	12 (7.8)	--	
Unlikely	32 (8.8)	9 (10.2)	5 (7.5)	13 (8.5)	5 (8.8)	
Very Unlikely	83 (22.7)	22 (25.0)	23 (34.3)	31 (20.3)	7 (12.3)	
Have Naloxone						
Yes	303 (77.1)	79 (82.3)	49 (67.1)	132 (81.5)	43 (69.4)	0.02
No	90 (22.9)	17 (17.7)	24 (32.9)	30 (18.5)	19 (30.6)	

Notes:

* Frequencies for methods of drug use encompassed the type of method used across all drugs reported, therefore, participants could report multiple methods of use for a single substance.

[‡] Participants answered this question only if they answered the previous question about using with other people as always, most of the time, or prefer not to answer.

Table 3. Proportion of Respondents who Have Witnessed an Overdose and Have Naloxone by Race and Ethnicity Stratified by Opioid Use

	Race and Ethnicity					p-value
	Overall (N=393) N(%)	Hispanic (n=96) N(%)	Non-Hispanic Black (n=73) N(%)	Non-Hispanic White (n=162) N(%)	Other (n=62) N(%)	
Opioid Use in the Last 30 Days?						
Yes	243 (61.8)	52 (54.2)	38 (52.1)	115 (71.0)	38 (61.3)	0.01
No	150 (38.2)	44 (45.8)	35 (48.0)	47 (29.0)	24 (38.7)	
Among People Who Use Opioids						
Witness an Overdose						
Yes	192 (79.0)	42 (80.8)	27 (71.1)	98 (85.2)	25 (65.8)	0.04
No	51 (21.0)	10 (19.2)	11 (28.9)	17 (14.8)	13 (34.2)	
Have Naloxone*						
Yes	177 (72.8)	39 (75.0)	22 (57.9)	92 (80.0)	24 (63.2)	0.09
No	65 (26.8)	13 (25.0)	16 (42.1)	22 (19.1)	14 (36.8)	
Among People Who Do Not Use Opioids						
Witness an Overdose						
Yes	73 (48.7)	24 (54.5)	15 (42.9)	21 (44.7)	13 (54.2)	0.64
No	77 (51.3)	20 (45.4)	20 (57.1)	26 (55.3)	11 (45.8)	
Have Naloxone						
Yes	90 (60.0)	17 (38.6)	10 (28.6)	22 (47.8)	12 (50.0)	0.26
No	60 (40.0)	27 (61.4)	25 (71.4)	24 (52.2)	12 (50.0)	

* 1 case prefer not to answer.

Table 4.

Multivariable Logistic Regression Results for Route of Substance Administration by Race and Ethnicity

	Adjusted Odds Ratio (95% Confidence Interval)	
	Smoking[*]	Injection[†]
Race and Ethnicity		
Non-Hispanic White	Ref	Ref
Non-Hispanic Black	0.42 (0.08–2.13)	0.14 (0.04–0.45)
Hispanic	0.84 (0.19–3.69)	0.40 (0.18–0.90)
Other	0.28 (0.06–1.37)	0.23 (0.09–0.62)

^{*} The multivariable logistic regression model for the smoking route of substance administration controlled for marijuana and crack cocaine use to address potential confounding.

[†] The multivariable logistic regression model for the injection route of substance administration controlled for heroin, fentanyl, methamphetamine, and benzodiazepine use to address potential confounding.

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