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Drug Overdose Mortality Rates Among Non-Hispanic American Indian/Alaska Native Individuals, 1999–2022

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Abstract

Purpose: To examine epidemiological trends in drug overdose deaths for non-Hispanic American Indian/Alaska Native (AIAN) individuals compared to White individuals.

Methods: We obtained data from the CDC WONDER database to examine crude drug overdose death rates per 100,000 among AIAN and White individuals from 1999–2022. Rates were further stratified by manner of death, sex, age, urbanization, Census region, state, and specific drug types.

Results: From 1999–2022, drug overdose death rates for AIAN individuals increased from 3.17 (95% CI, 2.48–4.00) to 40.73 (95% CI, 38.19–43.27), representing a 13-fold increase; in contrast, rates rose by 6-fold for White individuals. In 2022, methamphetamine was the leading driver of overdose death rates for AIAN individuals, at 31.39 (95% CI, 29.16–33.62) per 100,000, followed by fentanyl, at 22.35 (95% CI, 20.46–24.23) per 100,000. Geographical variations were notable, with particularly high rates for AIAN individuals in large central metros (53.54 per 100,000) and the Midwest (50.31 per 100,000). Rates were higher for AIAN than White individuals in 20 of 21 states (95.2%).

Conclusions: AIAN individuals are disproportionately impacted by the overdose crisis. Further efforts are needed to expand access to harm reduction-informed, culturally-competent health education, addiction treatment, and social services in the AIAN population.

Keywords

American Indian; Alaska Native; Drug Overdose; Fentanyl; Methamphetamine; Racial Disparities

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Introduction

U.S. drug overdose deaths have increased more than five-fold since 1999, surpassing 100,000 deaths annually since 2021.[1] In 2022, approximately 80,000 opioid overdose deaths were reported, largely due to the widespread proliferation of illicit fentanyl.[1,2] This 'fourth wave' overdose crisis, characterized by fentanyl mixed with stimulants, underscores a national public health concern.[3]

Prior evidence demonstrates that non-Hispanic Black and American Indian/Alaska Native (AIAN) populations are disproportionately impacted by the overdose crisis, with overdose death rates surpassing White individuals since 2020.[3] Stimulant use, particularly methamphetamine, is prevalent in the AIAN population—nearly four times higher than White individuals.[4] Polysubstance overdose rates (commonly involving fentanyl, methamphetamine, and cocaine) have also increased over the past decade, particularly for AIAN individuals with lower socioeconomic status or mental health conditions.[5,6]

Disparities in drug overdoses should be contextualized in the broader landscape of structural disparities in healthcare and social services, including higher rates of poverty, housing instability, criminal justice involvement, and lack of access to effective addiction treatment and mental health services.[3] Further, higher rates of substance use and mental health conditions must also recognize historical harms from exclusionary policies and structural racism, including policies mandating assimilation, forced relocation of AIAN communities, and boarding schools, among many others.[7–9] These historical and structural frameworks are essential not only in understanding disparities in drug overdoses and addiction treatment, but also play a vital role in informing clinical and public health interventions needed to address them.

Further research is needed to understand long-term drug overdose patterns for AIAN individuals, especially in more recent years given the increasing infiltration of illicit fentanyl across the U.S. Thus, this study aims to comprehensively describe demographic, geographical, and temporal trends in drug overdoses in the AIAN population to inform public health interventions centered around bridging racial/ethnic disparities in drug overdoses.

Methods

This serial cross-sectional study obtained data on drug overdose deaths from the Centers for Disease Control and Prevention Wide-Ranging Online Data for Epidemiological Research (CDC WONDER) database for all years in the database (1999–2022) at the time of data analysis. We limited this study to Non-Hispanic AIAN and White individuals (hereafter referred to by race alone); the latter was selected as the reference group as the existing literature shows White individuals had the highest rates of drug overdoses in earlier waves of the U.S. drug overdose crisis. Consistent with prior research,[3,5] we defined "drug overdose" as an underlying cause of death according to the following *International Classification of Diseases, 10th Edition (ICD-10)* codes: unintentional (X40–44), suicide (X60–64), homicide (X85), or undetermined intent (Y10–14).

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We further examined specific drug types according to the following multiple cause of death *ICD-10* codes: heroin (T40.1), prescription opioids/methadone (T40.2, T40.3), synthetic narcotics (T40.4; predominantly illicit fentanyl), cocaine (T40.5), psychostimulants with abuse potential (T43.6; predominantly illicit methamphetamine), and benzodiazepines (T42.4). Multiple causes of death represent a fraction of the total drug overdose deaths (underlying cause of death). We also examined polysubstance overdoses co-involving fentanyl with "stimulants" (cocaine or methamphetamine). Further details about the CDC WONDER search queries and *ICD-10* codes are provided in eTables 1–2 of the eMethods.

We calculated crude mortality rates for both AIAN and White populations, then stratified by sex; age (<15, 15–24, 25–34, 35–44, 45–54, 55–64, 65–74, and >74 years); urbanization (non-core non-metropolitan, micropolitan, small metropolitan, medium metropolitan, large fringe metropolitan, and large central metropolitan); and all states in the four US Census regions (Northeast, Midwest, South, and West). State-level analyses were conducted for the years 2010, 2015, and 2022, restricting to states with available data in at least two of these years to enable temporal comparisons. We also calculated mortality rate ratios (MRRs) for AIAN individuals compared to White individuals (reference). We followed STROBE reporting guidelines for observational studies. Data analyses were conducted using R software version 4.0.3. The Virginia Commonwealth University Institutional Review Board deemed this study exempt from review and waived informed consent.

Results

In 2022, there were 986 drug overdose deaths among AIAN individuals and 43,136 among White individuals (Table 1). Overall, the drug overdose death rate among AIAN individuals, at 40.73 (95% CI, 38.19–43.27) per 100,000, was roughly twice that of White individuals at 21.98 (95% CI, 21.78–22.19) per 100,000. Between 1999 and 2010, these rates increased by similar magnitudes for AIAN and White individuals: 221% for AIAN individuals (from 3.17 to 10.20 deaths per 100,000) and 174% for White individuals (from 3.79 to 10.38 deaths per 100,000) (Figure 1). However, between 2011 and 2022, this increase was more than two-fold higher among AIAN individuals: 270% for AIAN individuals (from 11.01 to 40.73 deaths per 100,000) and 96% for White individuals (from 11.21 to 21.98 deaths per 100,000). By manner of death, unintentional drug overdose deaths were higher for AIAN individuals, at 38.54 (36.07–41.01) per 100,000, than for White individuals, at 19.53 (19.34–19.73) per 100,000 (Table 1).

Drug types

Drug overdose death rates also varied by drug type. In 2022, drug overdose death rates involving prescription opioids, heroin, benzodiazepines, and cocaine demonstrated relatively minor differences between AIAN and White individuals (Table 1). Overdose death rates involving fentanyl was higher for AIAN individuals, at 22.35 (95% CI, 20.46–24.23) per 100,000, compared to White individuals, at 12.48 (95% CI, 12.32–12.63) per 100,000. Fentanyl was involved in the majority of overdoses for both AIAN individuals (54.89%; n=541/986) and White individuals (56.76%; n=24,482/43,136). Between 2015 and 2022, fentanyl overdose deaths rose 2304% for AIAN individuals (from 0.93 to 22.35 per

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100,000), while rising 768% for White individuals (from 1.44 to 12.48 to per 100,000) (Figure 1).

Methamphetamine overdose death rates was substantially higher for AIAN individuals, at 31.39 (95% CI, 29.16–33.62) per 100,000, compared to their White counterparts, at 12.30 (95% CI, 2.15–12.46) per 100,000. Overdose deaths co-involving both fentanyl and methamphetamine were also higher for AIAN individuals, at 17.76 (95% CI, 16.08–19.44) per 100,000, compared to White individuals, at 7.93 (95% CI, 7.80–8.05) per 100,000. In 2022, methamphetamine was involved in roughly 3 of 4 drug overdose deaths among AIAN individuals (77.08%; n=760/986) and more than half among White individuals (55.97%; n=24,144/43,136). Between 2015 to 2022, methamphetamine overdose rates increased by 499% for AIAN individuals (from 5.24 to 31.39 deaths per 100,000), while increasing by 474% for White individuals (from 2.14 to 12.30 per 100,000) (Figure 1).

Sex-specific trends

In 2022, drug overdose death rates were higher for males than females for both AIAN and White individuals (Table 1). In 2018, drug overdose death rates among AIAN females, at 13.79 (95% CI, 11.84–15.74) per 100,000, surpassed White females, at 11.61 (95% CI, 11.40–11.82) per 100,000 (Figure 2). Similarly, in 2018, rates among AIAN males, at 20.28 (95% CI, 17.87–22.68) per 100,000, surpassed White males, at 17.13 (95% CI, 16.87–17.39) deaths per 100,000.

Age-specific trends

Age-stratified analyses demonstrated that drug overdose death rates were highest for individuals aged 35 to 44 years for both AIAN individuals, at 92.24 (95% CI, 81.60–102.87) per 100,000, and White individuals, at 47.04 (95% CI, 46.18–47.89) per 100,000 (Table 1). In this age group, from 1999 to 2022, fatal drug overdose rates rose by 1150% for AIAN individuals (from 8.02 to 92.24 per 100,000) and 484% for White individuals (from 6.88 to 47.04 per 100,000) (Figure 4).

Geographical trends

Notable geographical variations were also noted. In 2022, drug overdose death rates were highest in large central metropolitan regions, with higher rates among AIAN individuals, at 53.54 (95% CI, 45.96–61.11) per 100,000, than White individuals, at 25.12 (95% CI, 24.64–25.60) per 100,000 (Figure 3). Drug overdose death rates were notably high for AIAN individuals in the Midwest, at 50.31 (95% CI, 43.46–57.16) per 100,000, and West, at 49.55 (95% CI, 45.32–53.79) per 100,000; these rates are roughly twice those in the Northeast and South. Methamphetamine-involved overdose deaths exhibited the highest MRRs across geographical regions, particularly in the Midwest (MRR: 4.05) and large central metropolitan areas (MRR: 3.08).

Finally, in 2022, drug overdose mortality rates were higher for AIAN individuals compared to White individuals in 20 of 21 states (95.2%). State-specific mortality rates for AIAN individuals were highest in Minnesota (155.23 per 100,000), Wisconsin (90.04 per 100,000), and Washington (88.12 per 100,000) (Figure 5). Similarly, the highest MRRs were noted in

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Minnesota (13.05), Wisconsin (5.96), and Idaho (5.66). From 2015 to 2022, the absolute rate difference between AIAN and White individuals increased more than five-fold (from 26.50 to 143.33 deaths per 100,000), while the relative difference more than doubled (from 5.15 to 13.04 times). In 2022, only two states—Kansas and Florida—demonstrated a narrowing of this disparity over time. In Florida, White individuals had a higher mortality rate in 2022, with an absolute difference of 6.79 deaths per 100,000 and a relative difference of 1.33 times.

Discussion

These study findings demonstrate disproportionately higher drug overdose death rates for AIAN individuals compared to White individuals, largely driven by increasing fentanyl- and methamphetamine-involved overdose deaths from 1999 to 2022. To bridge these widening disparities, further efforts are needed to ensure equitable access to culturally sensitive and evidence-based interventions for overdose prevention and addiction treatment in the AIAN population.

Since 1999, overdose rates have surged nearly 13-fold for AIAN individuals, compared to a six-fold increase for White individuals. Mirroring trends in the general U.S. population, AIAN males showed higher overdose rates than females; however, both AIAN males and females experienced relatively higher rates than their White counterparts.[10,11]

Further, we documented that overdose death rates involving prescription opioids, heroin, benzodiazepines, and cocaine increased only modestly post-2015; however, those involving fentanyl-related overdoses increased dramatically, rising 23-fold for AIAN individuals and eight-fold for Whites between 2015 and 2022. This is consistent with previous studies showing shifts in the specific drug types involved in overdoses in the general population, beginning with a prescription opioid-driven epidemic in the early 2000s (first wave), transitioning to heroin around 2010 (second wave), and culminating in an epidemic dominated by fentanyl (third wave) and fentanyl with stimulants (fourth wave) by the mid-2010s.[2,6]

However, our study findings highlight notable differences between the specific drug types involved in overdoses for the AIAN population compared to the general population. Cocaine overdoses increased only modestly for AIAN individuals, with a 2021 rate of 2.9 deaths per 100,000, compared to 7.3 per 100,000 in the general US population.[10] Methamphetamine overdose deaths, in contrast, were especially pronounced in the AIAN population and increased five-fold from 2015 to 2022, reaching 26.4 per 100,000—double the rate for White individuals and far exceeding the national rate of 10.0 per 100,000 in the general US population.[10] These trends are consistent with prior evidence showing the higher rates of methamphetamine use and overdoses in the AIAN population.[12]

We also noted considerable geographical variations, particularly for AIAN individuals in the West and Midwest Census regions. Prior evidence suggests that, by 2021 polysubstance overdoses co-involving fentanyl and methamphetamine were more prevalent in Western illicit drug supplies, while those co-involving fentanyl and cocaine were more prevalent

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in the Northeast; these shifts in the illicit drug supply may partially explain the observed geographical variations.[2,3] Methamphetamine use has been associated with various structural disparities, such as disproportionately affecting those experiencing housing instability, poverty, and criminal justice involvement;[12–16] thus, further efforts are needed to provide health and social services for AIAN individuals who use methamphetamine to prevent overdose, improve access to medication-assisted therapy and psychotherapy, and address social disparities in health that increase vulnerability to drug-related harms.

In the general US population, fewer than 1 in 3 individuals with methamphetamine use disorder receive effective treatment.[13] AIAN individuals likely experience even greater disparities, given the chronically underfunded federal Indian Health Services (IHS) and tribal healthcare systems.[6,17] In 2017, per capita health expenditures were more than double for the general population compared to IHS patients ($9,700 versus $4,100), underscoring the urgent need to improve access to culturally tailored addiction treatment and mental health services for the AIAN population.[17,18] Incorporating culturally tailored practices such as sweat lodges, smudging, and healing circles into addiction treatment is vital for reconnecting AIAN individuals with cultural identity and promoting spiritual healing.[19–21] Addiction treatment programs should be co-designed with AIAN elders and community members to ensure interventions align with Indigenous principles of whole-person wellness, addressing physical, mental, emotional, and spiritual health.[20–23]

Our study findings also demonstrate that drug overdose death rates were highest for AIAN individuals aged 35–44 year. AIAN youth often experience higher rates of adverse childhood experiences such as household substance use, interpersonal violence, and trauma, which may increase the risk of developing substance disorders.[7,24,25] Further, the limited availability of youth-specific mental health and addiction services in AIAN communities may exacerbate these disparities.[24] Culturally appropriate prevention and intervention programs, including school-based initiatives and community outreach, are needed; in particular, harm reduction-oriented health education for methamphetamine may play a key role in reducing methamphetamine use and related harms among AIAN youth.

Interestingly, the highest drug overdose death rates for AIAN individuals were noted in both urban (e.g., large central metropolitan) and rural regions (e.g., non-core non-metropolitan). In urban regions, the increased infiltration of fentanyl and methamphetamine in illicit drug supplies in these areas may increase their risk of overdose.[26] Urban environments also create unique health and social challenges for AIAN individuals such as cultural dislocation, homelessness, and limited access to culturally-competent healthcare.[27,28] For instance, migration to urban areas in search of better opportunities can result in a loss of community support and traditional practices that protect against substance use.[27,28] Conversely, in rural and non-metropolitan settings, AIAN populations may experience challenges such as geographical isolation and lack of access to accessing essential SUD and mental health treatment services, particularly in more remote communities.[29] To address these disparities, further efforts are needed to expand harm reduction programs and culturally competent addiction treatment in both urban and rural areas, with consideration for the unique factors in each locality that increase risk of substance use and overdose.

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Finally, the rapidly increasing drug overdose death rates for AIAN individuals must be interpreted in the broader context of longstanding systemic inequalities in healthcare and intergenerational trauma.[3] For instance, the enduring consequences of social exclusion, economic deprivation, forced displacement, and geographical isolation continue to hinder many AIAN individuals from accessing timely and effective addiction treatment and social services, increasing their risk of drug-related harms.[30–32] Addressing these social and structural disparities is complex and requires long-term investments in AIAN healthcare infrastructure. Collaborations with AIAN leaders and elders are essential, bringing invaluable expertise and knowledge of the local traditions, culture, and social context needed to implement effective, trauma-informed health and social services for AIAN individuals needing substance use treatment. Further, enhancing data collection and surveillance to capture accurate AIAN health outcomes is crucial.[34] Historically, comprehensive data on AIAN health outcomes have been lacking, partly due to misclassification in health records. Additionally, data aggregation under the umbrella term “American Indian and Alaska Natives” obscures crucial disparities and hinders efforts to implement tailored, culturally sensitive interventions.[35] National and subnational public health data systems should be more flexible and conducive to the vast diversity of tribal societies and nations. A pragmatic solution may be using self-reported survey questions and open-ended questions that capture distinct community cultures, values, languages, and knowledge.

Limitations

This study has several limitations. While the CDC WONDER database provides reliable population-level estimates of drug overdose deaths through systematic ICD-10 coding, potential racial misclassification of NH AIAN individuals in death records may lead to an underestimation of true mortality rates. Additionally, the cross-sectional design limits causal inference, highlighting the need for longitudinal studies to better evaluate the demographic, regional, and temporal trends in overdose-related mortality in the NH AIAN population. The use of county-level urbanization classifications may also obscure more localized patterns of drug availability and treatment access. Furthermore, this study did not account for key social determinants of health—such as healthcare access, historical trauma, and socioeconomic disparities—that likely contribute to the widening overdose disparities among NH AIAN populations. Future studies should examine these social, demographic, and clinical variables through an intersectional lens; for instance, within each geographic region, disparities across age groups may be critical to investigate in order to inform targeted clinical and public health interventions. Furthermore, in our state-level analysis comparing 2010, 2015, and 2022, we included only states with available data for at least two of these years; 21 states met this criterion. Future research should incorporate mixed-methods approaches to better contextualize these factors and guide the development of culturally tailored interventions. Lastly, given the rapid evolution of the illicit drug supply, including the rise of synthetic opioids and novel stimulant formulations, ongoing surveillance is essential to track emerging trends and inform targeted harm reduction strategies.

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Conclusion

The drug overdose crisis remains one of the leading drivers of morbidity and mortality in the U.S., disproportionately impacting AIAN individuals. Clinicians, public health agencies, legislators, policymakers, harm reduction organizations, and other key stakeholders play a vital role in bridging these disparities, but this will require multi-level interventions across several areas: the deployment of rapid drug testing, robust epidemiological surveillance, culturally-competent addiction treatment, and investments into social services and programs that address the structural factors increasing vulnerability to substance use and overdose. Such interventions should be tailored to specific drug types, particularly illicit fentanyl and methamphetamine which are driving rates of drug overdose for AIAN individuals. AIAN stakeholders and tribal leaders are essential to meet these aims, advancing health equity.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Mr Zhu had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Data Sharing Statement:

All data used this study are publicly available at https://wonder.cdc.gov/mcd.html

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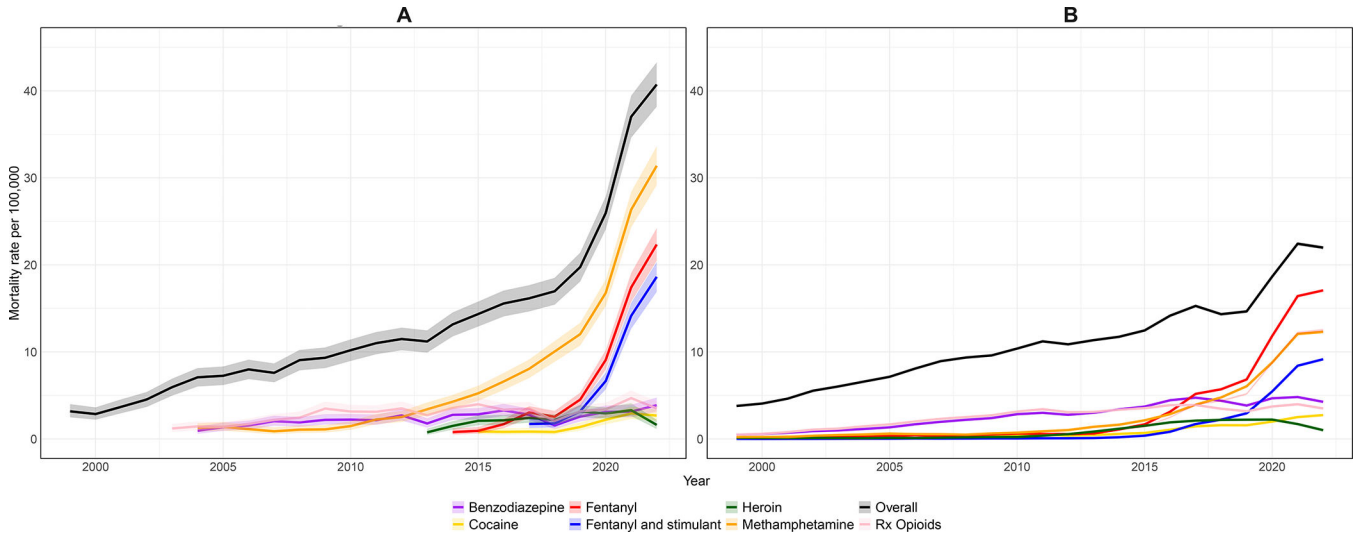


Figure 1. Drug overdose mortality rates among non-Hispanic AIAN and White individuals, 1999–2022

Crude mortality rates per 100,000 population due to drug overdoses are shown for non-Hispanic (A) American Indian and Alaska Native (AIAN) individuals and (B) White individuals. Lines indicate overall drug overdoses (black) and specific drug types: prescription opioids (pink), heroin (green), fentanyl (red), cocaine (yellow), methamphetamine (orange), benzodiazepines (purple), and fentanyl with stimulants (blue). Shaded areas represent the 95% confidence intervals. Data were sourced from the CDC WONDER Multiple Causes of Death database.

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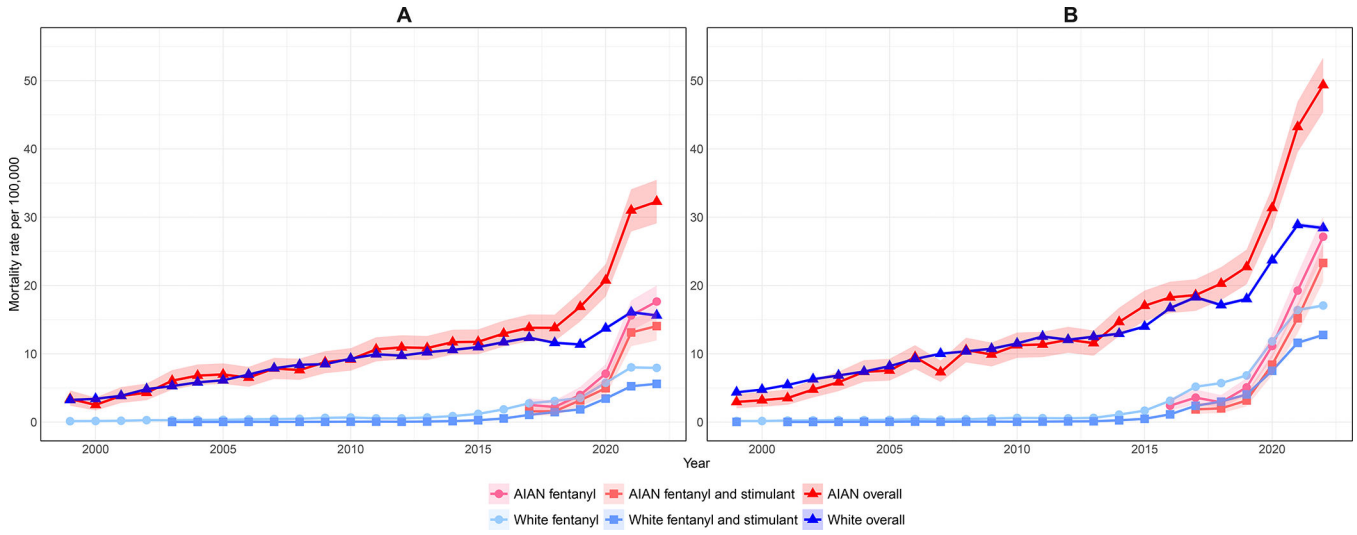
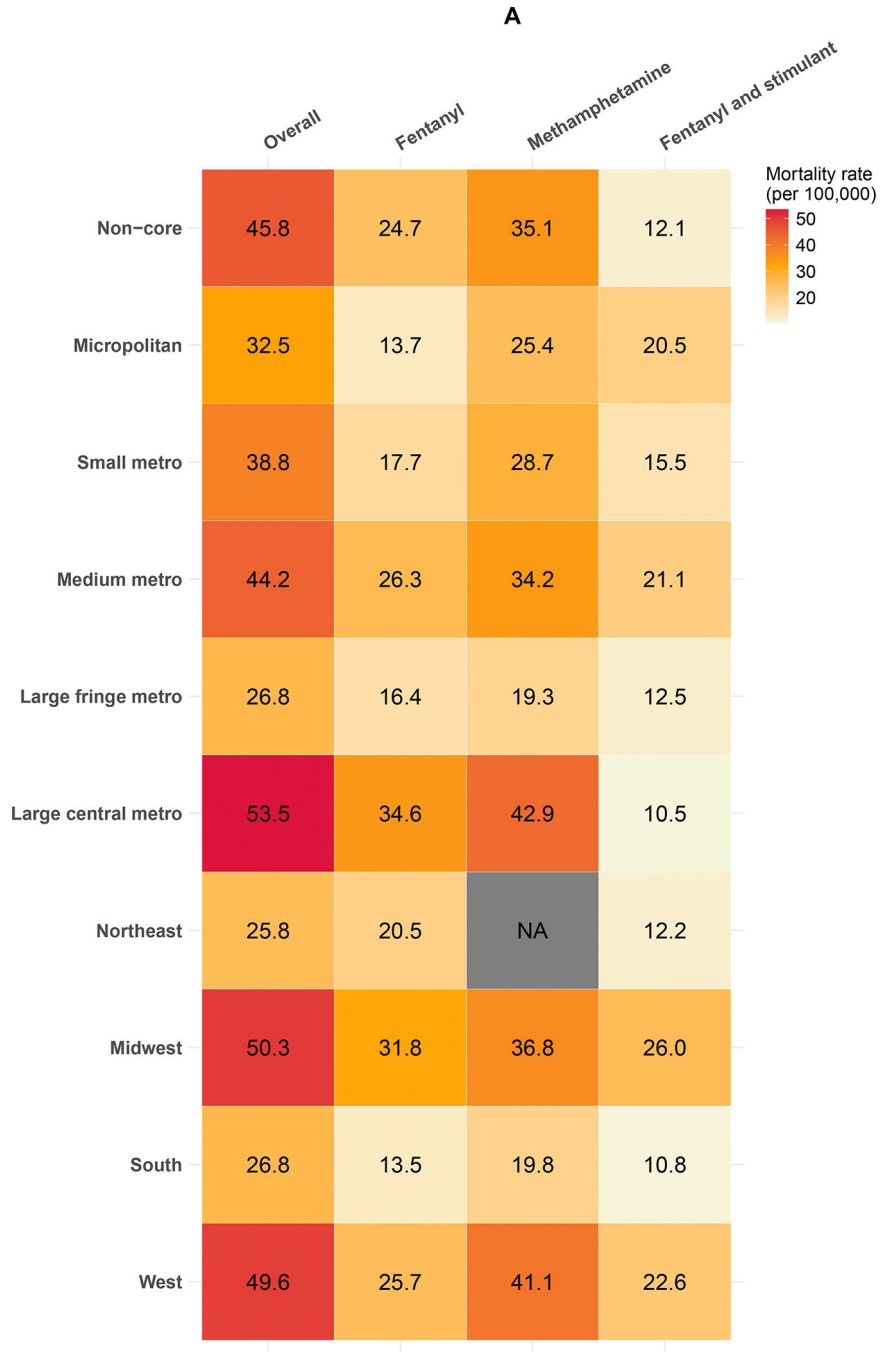


Figure 2. Sex differences in drug overdose mortality rates among non-Hispanic AIAN and White individuals, 1999–2022

Crude mortality rates per 100,000 population for drug overdoses are shown for non-Hispanic American Indian and Alaska Native (AIAN) individuals (red) and non-Hispanic White individuals (blue), separated by (A) female and (B) male sexes. Lines represent overall drug overdoses (triangle), fentanyl (circle), and fentanyl combined with stimulants (square). Shaded areas represent the 95% confidence intervals. Data sourced from the CDC WONDER Multiple Causes of Death database.

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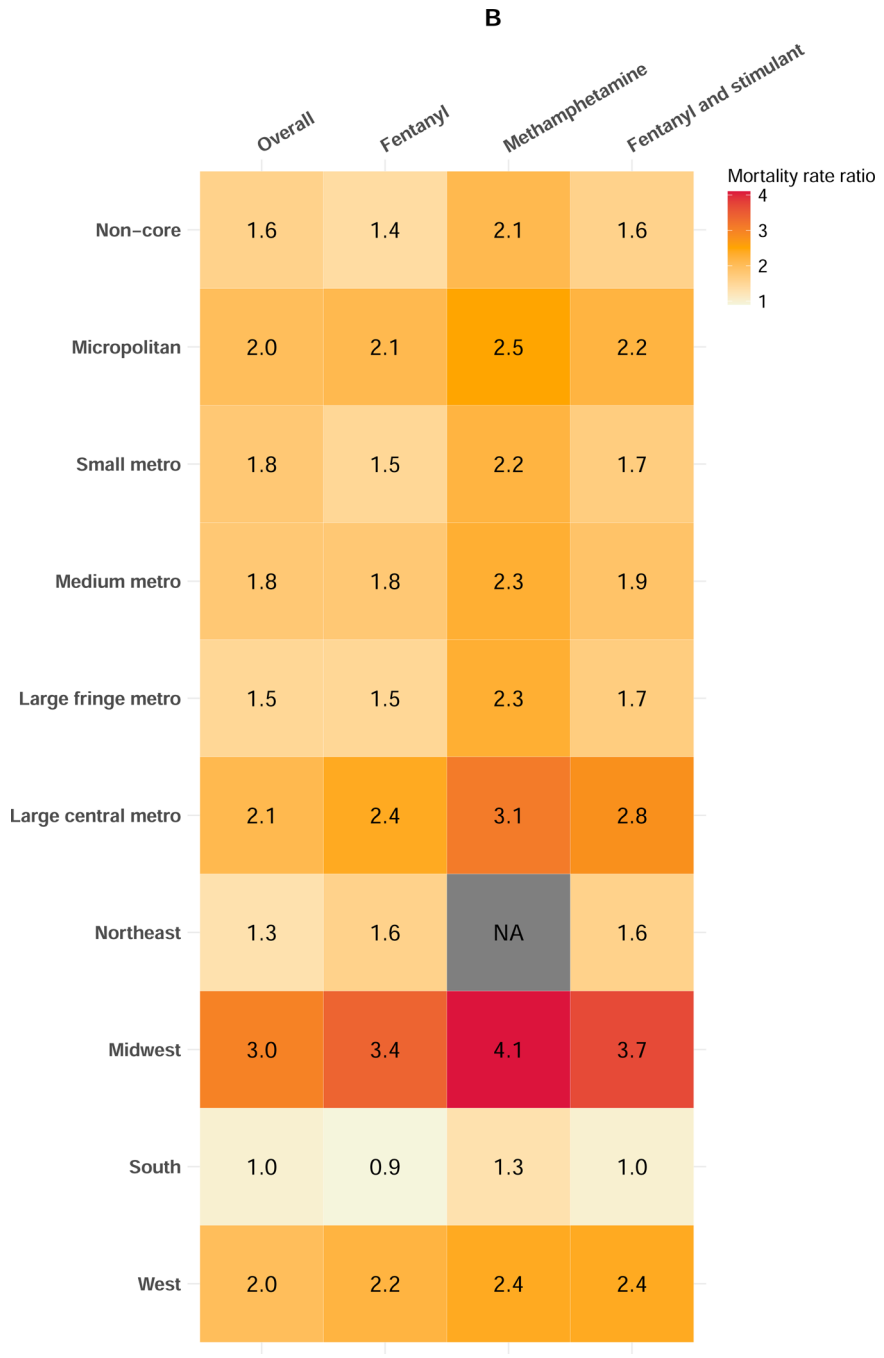


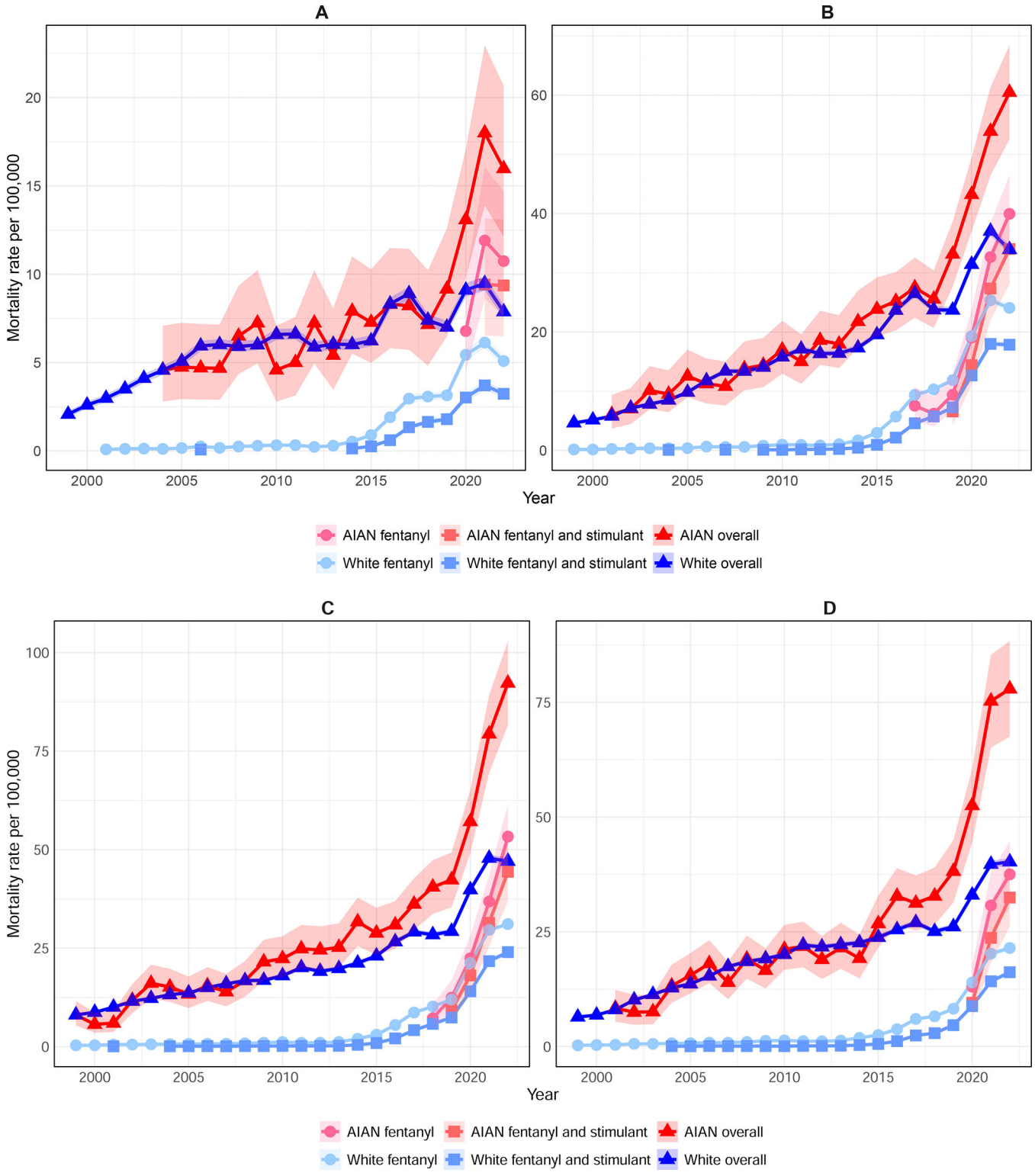
Figure 3. Mortality rates and rate ratios for drug overdoses by geographical and urbanization categories, 2022

(A) Crude mortality rates per 100,000 population among non-Hispanic American Indian and Alaska Native (AIAN) individuals for overall drug overdoses, fentanyl, methamphetamine, and fentanyl combined with stimulants across various urbanization levels and US Census regions in 2022. (B) Mortality rate ratios for the same categories and regions, comparing non-Hispanic AIAN individuals to non-Hispanic White individuals. The heatmap colors represent the magnitude of mortality rates (A) and rate ratios (B), with higher values

indicated by red and lower values by blue. Data were sourced from the CDC WONDER Multiple Causes of Death database.

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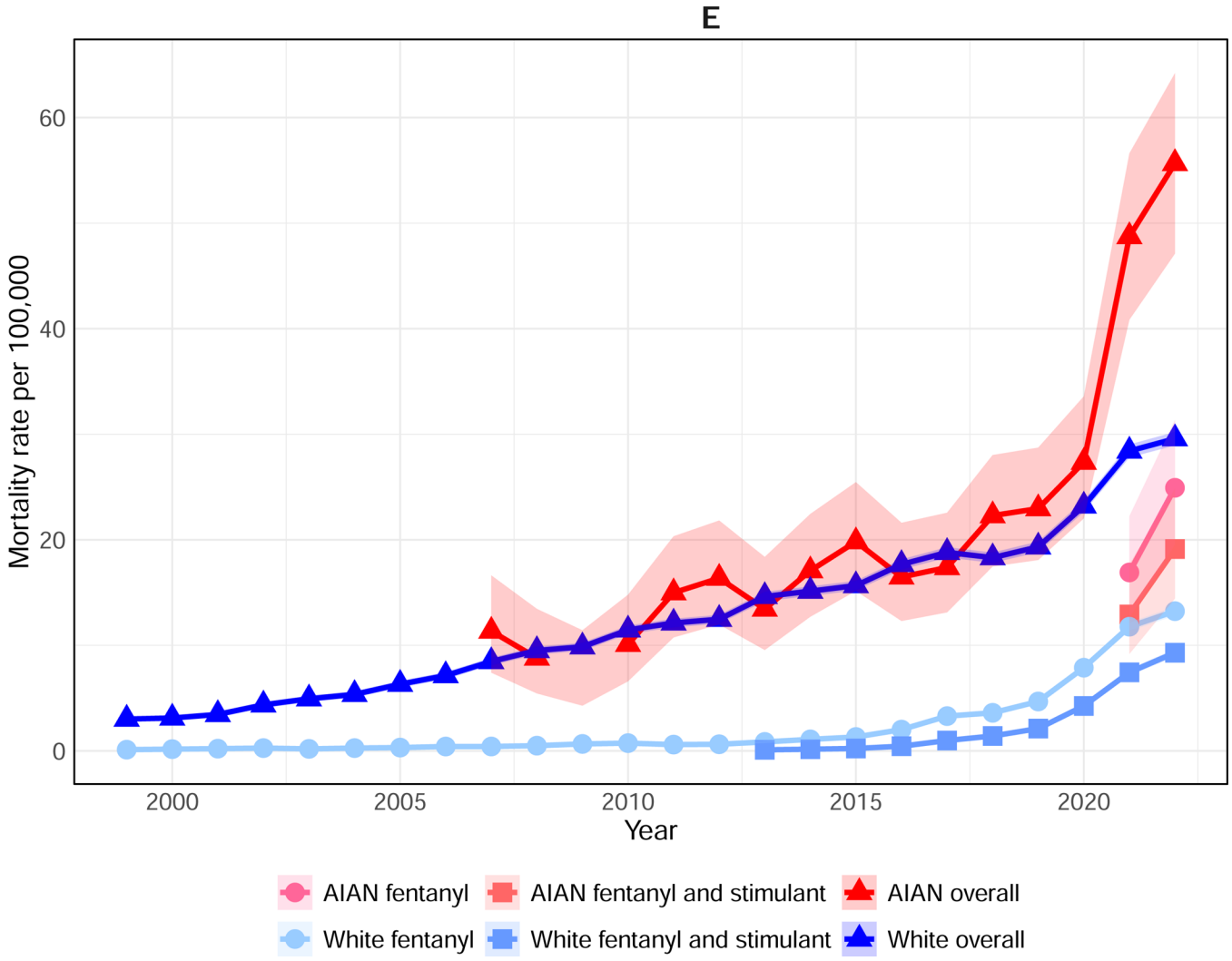


Figure 4. Age group differences in drug overdose mortality rates among non-Hispanic AIAN and White individuals, 1999–2022

Crude mortality rates per 100,000 population for drug overdoses are shown for non-Hispanic American Indian and Alaskan Native (AIAN) individuals (red) and non-Hispanic White individuals (blue), separated by age groups: (A) 15–24 years, (B) 25–34 years, (C) 35–44 years, (D) 45–54 years, and (E) 55–64 years. Data for individuals aged <15 years or 65 years and older were not included due to small sample sizes, resulting in data suppression within the CDC WONDER database. Lines represent overall drug overdoses (triangle), fentanyl (circle), and fentanyl combined with stimulants (square). Shaded areas represent the 95% confidence intervals (Cis). Data sourced from the CDC WONDER Multiple Causes of Death database.

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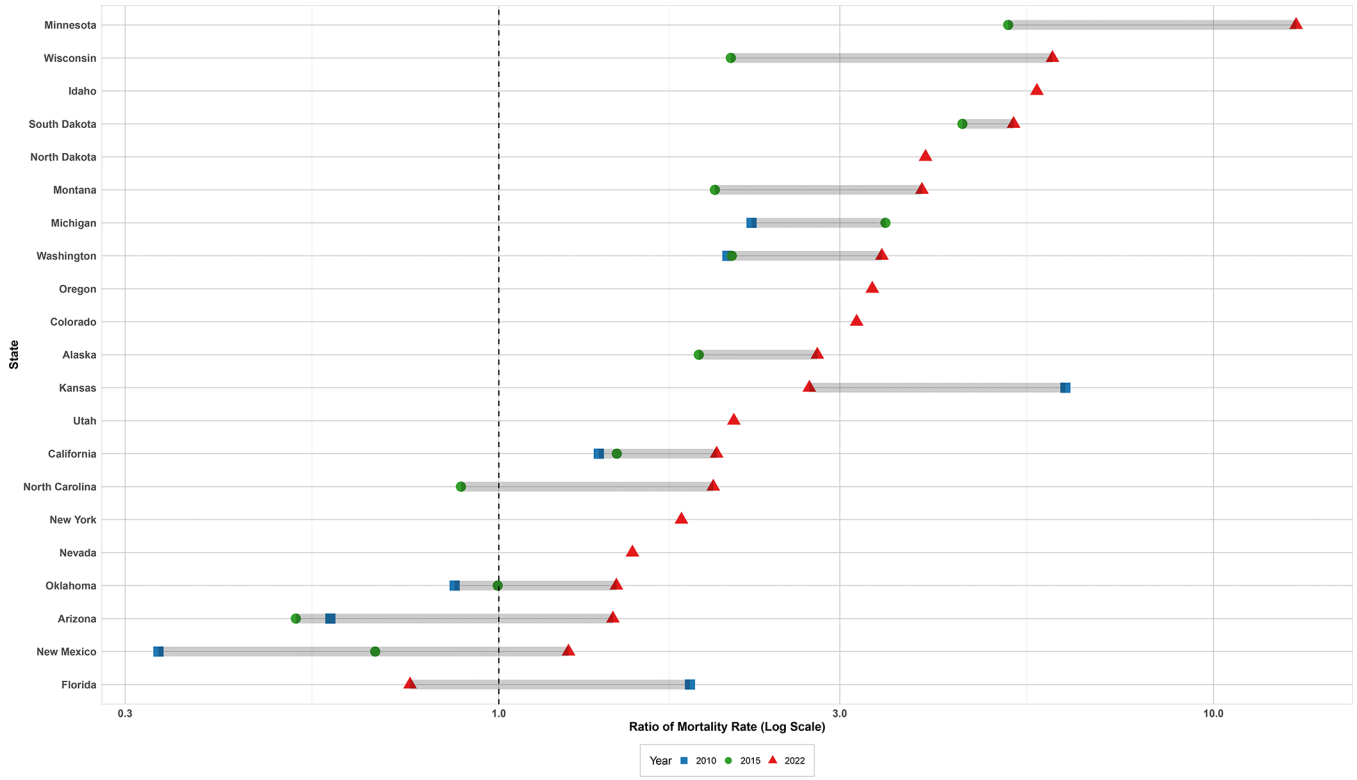


Figure 5. Ratio of drug overdose mortality rates between non-Hispanic AIAN and White individuals across states in 2010, 2015, and 2022

Ratios of drug overdose mortality rates between non-Hispanic American Indian and Alaska Native (AIAN) individuals and non-Hispanic White individuals across various states for the years 2010 (blue squares), 2015 (green circles), and 2022 (red triangles). Only state-years with sufficient overdose death data are included. The vertical dashed line represents a ratio of 1.0, indicating equal mortality rates between non-Hispanic AIAN and White individuals. Grey bars connect the values for each state across the three years. Data were sourced from the CDC WONDER Multiple Causes of Death database.

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Table 1.

Number and rate (per 100,000 population) of fatal overdoses in the Non-Hispanic AIAN and White populations, 2022

Characteristic	Non-Hispanic AIAN		Non-Hispanic White		Rate Ratio
	N	Rate per 100,000	N	Rate per 100,000	
Overall	986	40.73 (38.19–43.27)	43,136	21.98 (21.78–22.19)	1.85
Manner of Death					
Unintentional	933	38.54 (36.07–41.01)	38,325	19.53 (19.34–19.73)	1.97
Suicide	32	1.32 (0.90–1.87)	3524	1.80 (1.74–1.86)	0.73
Homicide	—	—	125	0.06 (0.05–0.07)	—
Undetermined Intent	19	—	1162	0.59 (0.56–0.63)	—
Sex					
Female	395	32.28 (29.10–35.47)	15,420	15.62 (15.38–15.87)	2.07
Male	591	49.36 (45.38–53.34)	27,716	28.42 (28.09–28.76)	1.74
Drug type [2]					
Prescription opioids	85	3.51 (2.80–4.34)	6,872	3.50 (3.42–3.58)	1.00
Heroin	39	1.61 (1.15–2.20)	1,974	1.01 (0.96–1.05)	1.59
Fentanyl	541	22.35 (20.46–24.23)	24,482	12.48 (12.32–12.63)	1.79
Benzodiazepines	94	3.88 (3.14–4.75)	8,365	4.26 (4.17–4.35)	0.91
Any stimulant	784	32.38 (30.12–34.65)	27,004	13.76 (13.60–13.93)	2.35
Cocaine	65	2.68 (2.07–3.42)	5,374	2.74 (2.67–2.81)	0.98
Methamphetamine	760	31.39 (29.16–33.62)	24,144	12.30 (12.15–12.46)	2.55
Fentanyl and any stimulant	451	18.63 (16.91–20.35)	17,973	9.16 (9.03–9.29)	2.03
Fentanyl and cocaine	54	2.23 (1.68–2.91)	4419	2.25 (2.19–2.32)	0.99
Fentanyl and methamphetamine	430	17.76 (16.08–19.44)	15,559	7.93 (7.80–8.05)	2.24
Age group, years					
<15	—	—	92	0.32 (0.26–0.39)	—
15–24	58	15.98 (12.13–20.65)	1805	7.88 (7.51–8.24)	2.03
25–34	224	60.47 (52.55–68.39)	8273	33.92 (33.19–34.66)	1.78
35–44	289	92.24 (81.60–102.87)	11,531	47.04 (46.18–47.89)	1.96
45–54	216	77.91 (67.52–88.30)	9641	40.23 (39.43–41.03)	1.94
55–64	163	55.66 (47.12–64.21)	8390	29.58 (28.95–30.21)	1.88
65–74	30	14.00 (9.44–19.98)	2676	10.80 (10.39–11.21)	1.30
>74	—	—	725	3.92 (3.64–4.21)	—
Urbanization					
Non-core	156	32.48 (27.38–37.58)	3002	20.38 (19.65–21.11)	1.59
Micropolitan	228	45.77 (39.83–51.71)	4730	22.83 (22.18–23.48)	2.00
Small metro	123	38.83 (31.97–45.69)	4740	21.65 (21.04–22.27)	1.79
Medium metro	212	44.25 (38.29–50.20)	10,786	25.27 (24.79–25.75)	1.75
Large fringe metro	75	26.80 (21.08–33.60)	9507	18.07 (17.71–18.44)	1.48
Large central metro	192	53.54 (45.96–61.11)	10,371	25.12 (24.64–25.60)	2.13
Census Region					

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Characteristic	Non-Hispanic AIAN		Non-Hispanic White		Rate Ratio
	N	Rate per 100,000	N	Rate per 100,000	
Northeast	34	25.84 (17.90–36.11)	6982	19.25 (18.79–19.70)	1.34
Midwest	207	50.31 (43.46–57.16)	8533	16.72 (16.37–17.08)	3.01
South	219	26.82 (23.27–30.38)	18,345	25.89 (25.51–26.26)	1.04
West	526	49.55 (45.32–53.79)	9276	24.37 (23.87–24.86)	2.03

— denotes suppressed or unreliable estimates in CDC WONDER; AIAN, American Indian and Alaskan Native

[1]Rate ratios were calculated by dividing the mortality rate of the non-Hispanic AIAN population by that of the non-Hispanic White population.

[2]The total percentages (e.g., any stimulant) may exceed 100% as individual components (e.g., fentanyl and methamphetamine) can co-occur in polysubstance mixtures.