Opioids in the USA
Disparities in addiction and incarceration

Arianna Kazemi, **Connor Kennedy** and **Gabri Silverman**, undergraduate winners of the ASA Public Health Data Challenge, and their advisor **Nicholas G. Reich**, explore differences in the death, arrest and reoffending rates for opioid users in the USA

Shawn (not his real name) was in remission from opioid addiction through the help of a treatment known as Suboxone. Out driving one day, he was pulled over and arrested on an outstanding warrant, followed by a week in a Massachusetts jail (bit.ly/33VfMTd). While jailed, he was not allowed to take Suboxone and underwent several excruciating days of withdrawal symptoms, including nausea, vomiting and severe anxiety. On release from jail, Shawn continued his Suboxone treatment – but other addicts may take a different path. Former prisoners may turn back to opioids to relieve their symptoms once released, continuing the cycle of addiction – and fuelling the ongoing opioid epidemic in the United States.

Opioids have become a common method of treating pain in patients in the USA, with the Centers for Disease Control and Prevention (CDC) reporting that there were about 58 prescriptions for opioids per 100 Americans in 2017 (bit.ly/33UX6TA). However, each day, an estimated 46 people die from overdoses involving prescription opioids. Although prescribing practices have changed since their peak around 2010, the morphine milligram equivalents prescribed per person are still three times higher than they were in 1999.

As part of the ASA Public Health Data Challenge, we decided to study the treatment of addicts who interact with the criminal justice system. Like Shawn, many imprisoned individuals in the USA are addicted to drugs. The National Institute on Drug Abuse estimates that as many as 65% of those incarcerated in the USA have a substance abuse problem (bit.ly/33T968a). Treatment of addiction disorders is especially important in the context of opioid addiction, as opioid addicts have a high rate of reoffending – also referred to as recidivism. If addicts are being sent to prison rather than treatment centres, it is in their best interests – and in society's best interests – to begin or continue necessary treatment while they are incarcerated. Studies show that in-prison treatment increases the likelihood of continued treatment post-release and reduces recidivism rates. However, even with this knowledge, only 11% of inmates who need such treatment receive it.

Deaths and arrests

Data on opioid-related deaths by race at the national level in 2014 give some sense of the populations being impacted by this crisis. The CDC WONDER database (bit.ly/33TsJwq) reveals that White Americans, representing just over 70% of the US population (based on census data), had the highest death rate, at 10 per 100,000. American Indian and Alaska Natives, representing under 1% of the US population, had the second highest death rate, at 7.4 per 100,000 (see significancemagazine.com/634 for a table of summary statistics).

To assess how different races interact with the criminal justice system, we used data from the Substance Abuse and Mental Health Services Administration (SAMHSA) data archive. The 2014 Treatment Episode Data Set: Admissions (TEDS-A; bit.ly/2TSS7y1) includes data on individuals who were admitted to publicly funded substance abuse programmes in the USA, including demographic variables such as age, race, and sex.

One variable we looked at in particular was arrests in the 30 days prior to admission to a treatment centre. The estimated number of arrests per 100 treated individuals was calculated separately for each racial group, by dividing the total number of arrests among individuals of each race in treatment centres by the total number of treated individuals of that race. From Figure 1, we see that American Indians have the highest estimated rate of arrests for individuals admitted to a treatment centre, with close to 9 arrests per 100 admissions. Members of the Asian or Pacific Islander group have the next highest rate, although this estimate

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is more uncertain due to a smaller denominator, and thus the estimate has a wider confidence interval.

The populations with the lowest estimated arrest rates were Native Hawaiian or other Pacific Islanders, Alaska Natives, and Black or African Americans, all with under 5 arrests per 100 treated individuals (although, again, there are wide confidence intervals on estimates for two of the three groups). It may be that individuals from these groups are being arrested and sent to prison – rather than for treatment – more than individuals from other groups, though further data on incarcerations would be needed to investigate this. Also, since these data are for public treatment institutions only, it could be that individuals from these groups are more likely than others to choose private treatment options.

Treatment referrals

Next, we used the same SAMHSA data set to compare the odds of being referred to a treatment centre from a non-criminal source (such as through an employee assistance programme or self-referral) against a criminal source (such as by a judge after a drug-related arrest), and how this differs by race. Based on the data from Figure 1, we predicted that minority populations such as American Indians and Asian or Pacific Islanders would have higher probabilities of criminal referrals to treatment centres than White opioid users.

Adjusting for age and gender, we found that Alaska Natives, American Indians, Asian or Pacific Islanders, Native Hawaiians, and those with two or more races were more likely than White opioid users to have a criminal referral to a treatment centre. Specifically, after adjusting for age and gender, Alaska Natives had an estimated 56% higher odds of receiving a criminal referral to a treatment centre than Whites (95% confidence interval: 28%, 89%). Meanwhile, opioid users who were Black or African American, Asian, "other single race", or with race missing from the data set were more likely than White opioid users to have a non-criminal referral to a treatment centre.

These results highlight the disparities – possibly due to social, cultural, or economic reasons – in how opioid-addicted individuals from different racial groups interact with the criminal justice system and treatment centres. Research has shown that people of colour have a higher risk of drug arrest than whites, and this disparity still exists when controlling for other factors such as rates of drug use, non-drug-related offences, and community crime.[1] Such research has indicated that racial bias, rather than differences in drug offences across races, is likely the cause for the disparities observed in drug-related arrests.

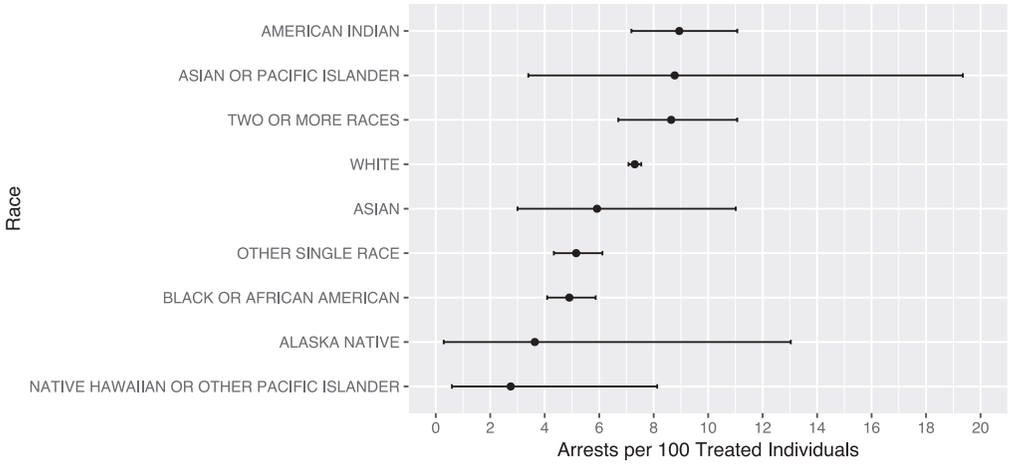

FIGURE 1 Estimated arrests per 100 individuals in public treatment centres, by race, in 2014, with binomial 95% confidence intervals.

Recidivism rates

We also performed statistical tests to assess differences in rearrest rates one year after release for opioid users who received treatment for addiction while in prison.[2] First, we compared those given methadone to those who used detox. The rearrest rate for those treated with methadone was 53.4%, compared to 72.2% for those using detox. The observed difference in rearrest rates provided evidence against the hypothesis that the groups have similar rearrest rates (one-tailed p-value < 0.001). Furthermore, rates of rearrest among methadone users were broadly similar to those of the general ex-convict population (50.4%) within the first year.

This analysis might suggest that methadone treatment in prison is more likely than detox to lower rearrest rates among opioid users on release. And, given that studies suggest that opioid users are 13 times more likely to interact with the criminal justice system, and that 24% of opioid users will receive treatment within the first 10 years of their addiction, methadone treatment in prison could be an effective method of treating such addicts within the criminal justice system (bit.ly/2TTZhBU).

To ensure that opioid addicts who are arrested receive proper treatment, we suggest greater use of referral to public treatment centres or, at a minimum, methadone treatment within prisons (n.pr/2TVC2aF). Such actions could result in lower recidivism rates, beneficial addiction support, and perhaps fewer deaths in the future. ■

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Note

For more information on the ASA Public Health Data Challenge, see bit.ly/2TVVK6i. For the list of winners, see bit.ly/2U4dMDD.

References

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