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EXAMINING THE LINK BETWEEN UNINTENTIONAL OVERDOSE DEATH AND PRIOR CRIMINAL HISTORY IN ILLINOIS

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Examining the Link Between Unintentional Overdose Death and Prior Criminal History in Illinois

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The author would like to recognize the contributions of Justin Escamilla, Ernst Melchior, Lily Gleicher, John Specker, Maryann Mason, Ursula Alexander, Jessica Reichert, Timothy Lavery, and Cristin Evans.

This evaluation was supported by Grant #2019-86-CX-K020 awarded to the Illinois Criminal Justice Information Authority by the Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice. Points of view or opinions contained within this document are those of the authors and do not necessarily represent the official position or policies of the Authority or the U.S. Department of Justice.

Suggested citation: Green, E. (2021). *Examining the link between unintentional overdose death and prior criminal history in Illinois*. Illinois Criminal Justice Information Authority.

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Executive Summary

Introduction

Drug overdose is one of the leading causes of unintentional death for persons in the United States. According to the Centers for Disease Control and Prevention (2021a), approximately two out of three of these deaths are related to opioids, including prescription opioids (e.g., oxycodone, morphine) and illicit opioids (e.g., fentanyl, heroin). The highly addictive nature of opioids may lead an individual to develop an opioid use disorder, which can precede disability and repeated relapse (American Psychiatric Association, 2018). Opioid use can lead to fatal or non-fatal overdose that includes side effects such as suppressed breathing and reduced heart rate (Krieger, 2018). The COVID-19 pandemic has also exacerbated the opioid epidemic and led to increased drug overdose rates throughout the country (American Medical Association, 2021).

There have been calls for research to understand opioid and other substance misuse and offer treatment and intervention recommendations, particularly for persons with criminal justice system involvement (National Institute on Drug Abuse, 2020a; National Institutes of Health, 2019). As persons released from incarceration have especially high risk for overdose during the period immediately following release, there is urgent need for evidence-based response and aftercare (Kinner et al., 2020; Waddell et al., 2020).

This study examined fatal drug overdoses in Illinois. I linked Illinois unintentional fatal drug overdose data with two Illinois justice system data sources: arrest data and corrections data. This linkage made it possible to compare the characteristics of justice-involved and non-justice-involved drug overdose decedents. I also offer recommendations for prevention and intervention efforts.

Methodology

Three data sources were used in this project. Fatal opioid overdose data collected from July 2017 through December 2018 were available from the Illinois State Unintentional Drug Overdose Reporting Surveillance (SUDORS) system housed by Northwestern University. SUDORS data is obtained from death certificates and coroner/medical examiner reports submitted by participating Illinois counties.[1] Arrest data from the Illinois State Police's Criminal History Record Information (CHRI) and incarceration data from the Illinois Department of Corrections (IDOC) were linked with SUDORS data to assess relationships between criminal justice involvement and unintentional fatal overdose. Data cleaning procedures were used to remove individuals with missing state file identification numbers, as it could not be determined if those individuals had criminal histories. The final dataset included 2,584 individuals' overdose information and criminal justice histories for analysis from 16 counties across Illinois.

[1] Participating counties included Cook, DuPage, Effingham, Kane, Kankakee, Kendall, Lake, Madison, McHenry, McLean, Peoria, Sangamon, St. Clair, Tazewell, Will, and Winnebago. SUDORS county participation is growing.

Findings

SUDORS data showed Cook County accounted for over half (59.8%) of the recorded overdoses. Of all overdose decedents examined, the majority had a prior arrest (*n* = 2,136; 82.7%) and almost one-third (*n* = 819; 31.7%) had a prior incarceration on their records. Overall, overdose decedents were more likely to be male (74.0%), White (68.8%), and non-Latinx (82.0%), with a mean age of 42 years old. Decedents with arrest histories were more likely to be non-White (34.3%) than those without arrest histories (18.5%).

Most individuals fatally overdosed in their homes, abandoned buildings, motels, and parking lots. Of the various modes through which drugs can be administered, decedents most commonly showed evidence of injection (24.8%). Bystanders were present at the scene of an overdose in almost one-third of the cases (28.8%). A bystander may be a critical element of assisting a person who has overdosed on opioids, as they can administer naloxone, an opioid reversal agent. While it is impossible to say whether these overdoses could have been prevented, the percentage of decedents with bystanders present at their fatal overdose may indicate a need for additional community training and resources in overdose rescue and naloxone administration.

Substance use treatment histories were similar among individuals with and without arrest histories. However, a higher proportion of persons who had not been arrested had a history of mental illness treatment than those who had been arrested (21.2% no arrest vs. 16.0% arrest) or were engaged in mental illness treatment at time of death (13.2% no arrest vs. 8.7% arrest). This does not necessarily mean that persons without arrest history were more likely to experience mental health problems, but perhaps these persons had fewer risk factors and external barriers that prevented them from receiving treatment in comparison to persons with arrest history.

The largest proportion of arrest charges that these individuals experienced were for property offenses (e.g., theft, fraud, criminal trespass; 26.8% of charges). Ordinance and traffic code violations primarily comprised the next largest category of arrest charges (e.g., drinking in public, soliciting unlawful business; 21.9% of charges), followed by drug-related offenses (e.g., possession of a controlled substance, possession of drug paraphernalia; 20.8% of charges). Although ordinance violations made up the second largest proportion of arrest charges, a higher proportion of individuals were actually convicted for drug-related offenses (29.0%) than for ordinance violations (7.6%).

Most overdose decedents with an arrest history had a lengthy involvement with the criminal justice system, with a median of 16 years between first and last arrest and seven years between first prison admit and last prison exit. Overdose decedents had a median of nine prior arrests. The time between an individual's last contact with the system and death was relatively short—overdose decedents had only a median of 2 years between their last arrest and death. Of the 2,136 decedents with arrest history, 426 died within six months of their last arrest (19.9% of those with arrest history), and 36 died within two weeks (1.7% of those with arrest history).

Of the 2,584 overdose decedents, 819 had a prison history. These individuals had 2,931 corrections admissions during their lifetimes, with a mean of 3.56 admits per person and median of 3.0 admits per person. A minimum of one admit and a maximum of 18 admits were recorded

for individuals. Of those who went to prison, the majority were released to parole (89.2%). Overall, decedents with an incarceration history had a median of 3 years between their last prison exit and death. However, of the 819 persons with incarcerations, 167 died within six months of their release (20.4% of those with incarcerations), and 59 died within two weeks (7.9% of those with incarcerations).

Recommendations for Policy and Practice

Identify Opportunities for Justice System Intervention and Harm Reduction

Many overdose decedents in this sample experienced arrests and incarcerations prior to their fatal overdose (82.7% had arrest history and 38.3% of those with arrests experienced incarceration). There are several points in the criminal justice system which could serve as opportunities for intervention. Specifically, researchers have developed continuums of care targeted to individuals involved with the justice system which identify interception points to divert at-risk persons into treatment.[2] Police, probation and court services, and correctional facilities offer openings where treatment can be considered. For those recently released from incarceration, proper reentry care and continued treatment are important for individuals with substance use disorders, especially for those with a coinciding mental health disorder. Follow-up should be conducted with these individuals to monitor known risks for overdose.

Further Research on Overdose and Criminal Justice Involvement

More research is needed to identify and evaluate cross-disciplinary interventions that are effective in preventing fatal overdoses within justice-involved persons using substances, particularly as new risk factors for overdose are identified. Larochelle et al. (2019) noted eight touchpoints which were associated with increased risk of fatal overdose:

1. High dosage of morphine-equivalents
2. Having a prescription for both an opioid and benzodiazepine
3. Having multiple opioid prescribers
4. Having multiple opioid-prescription-filling pharmacies
5. Having an inpatient withdrawal episode (i.e., opioid detoxification)
6. Experiencing a nonfatal opioid overdose
7. Having a potential injection-related infection requiring emergency care
8. Experiencing a release from incarceration

Intervention and prevention efforts that address these touchpoints and are considerate of age- and sex-related differences are needed. Future studies should also focus on learning how education and treatment can best be implemented and delivered to justice-involved persons (Belenko et al., 2013).

[2] See Gatens, A. (2019). *Mental health disorders and the criminal justice system: A continuum of evidence-informed practices.* Illinois Criminal Justice Information Authority. https://icjia.illinois.gov/mhcontinuum/; and Gleicher, L. (2019). *Reducing substance use disorders and related offending: A continuum of evidence-informed practices in the criminal justice system.* Illinois Criminal Justice Information Authority. https://icjia.illinois.gov/sudcontinuum/

Conclusion

Persons who died by unintentional overdose in Illinois in 2017 and 2018 commonly had criminal histories with multiple arrests and/or incarcerations throughout their lives. Further, the arrest charges leading up to their deaths were often drug-involved, which may have indicated risk for drug-related mortality. Many individuals died within two years post-incarceration, pointing to the need for more effective post-release substance misuse treatment strategies. In this sample, all overdose deaths were opioid-related, but persons who misuse opioids frequently use multiple substances, so prevention and treatment strategies must also account for polysubstance use (Compton et al., 2021). Research that continues to build upon our knowledge of overdose risks, particularly related to involvement with the justice system, will inform future prevention and intervention efforts. As participation in SUDORS continues to expand throughout the state, new studies may provide a more comprehensive look at Illinois drug overdoses.

Section 1: Introduction

Unintentional drug overdoses have increased as a cause of death, with over 70,000 Americans suffering fatal overdoses in 2019—almost double the 2010 total (Mattson et al., 2021; National Institute on Drug Abuse, 2020b). Most of these fatal overdoses involved opioid use (Centers for Disease Control and Prevention, 2021a), which has skyrocketed in recent years, leading to significant increases in opioid use disorders and overdoses (Stuart et al., 2018). Some researchers have suggested that the increase in opioid fatalities may be related to the addition of illicit fentanyl—one of the most potent and lethal opioids—to enhance the effect of the drug (World Health Organization, 2020). Addressing the opioid epidemic remains a top concern for public health officials, as in 2020, there were 2,944 opioid-related overdoses in Illinois—a 32.7% increase from 2019 (Illinois Department of Health, 2021). Further, the opioid epidemic costs the United States billions annually in both healthcare and criminal justice costs (Oderda et al., 2015).

Over one-third of adults in the criminal justice system meet the criteria for a substance use disorder, defined as drug or alcohol use that causes clinical impairment in work, school, or the home (Saloner et al., 2016). Having a dual diagnosis of both a substance use disorder and a mental health disorder further increases risk for overdose (Keen et al., 2020). Despite efforts to divert or treat those who are justice-involved, their risk for overdose, particularly after release from incarceration, remains high (Brinkley-Rubinstein et al., 2017). Stigma from being both justice-involved and having a substance use disorder may deter individuals from seeking much-needed treatment after release and may continue the cycle of substance misuse and recidivism (Hartwell, 2004; van Olphen et al., 2009).

Although opportunities exist within the criminal justice system to intervene with drug-involved individuals to reduce their risk of reoffending and fatal overdose, research has yet to firmly identify specific risk factors for this population. Few studies have investigated how justice system-involved individuals with substance use disorders compare to the general population of individuals with the same disorder. Less is known about mode of drug administration and the circumstances of overdoses.

In this study, I linked data from multiple sources. First, I obtained fatal opioid-related overdose data recorded by the Illinois Statewide Unintentional Drug Overdose Reporting System (SUDORS). This data contained individual case-level information from death certificates, coroner/medical examiner reports, and toxicology results, including demographics, overdose circumstances, and other relevant medical history. Arrest data was obtained from the Illinois State Police's (ISP) Criminal History Record Information (CHRI). CHRI contains information on number of arrests and arrest charges through fingerprint-based identification for persons with criminal history. Finally, incarceration data was obtained from the Illinois Department of Corrections (IDOC), including prison admit and exit dates and release information.

The data were used to examine the relationship between unintentional drug overdose deaths and criminal justice system involvement. This study attempted to answer the following research questions:

- What is the prevalence of prior criminal justice involvement among persons who died of an unintentional drug overdose?
- How many overdose decedents were currently involved in the criminal justice system at the time of their death (e.g., arrested, sentenced to probation, in prison)?
- Are the characteristics of persons with a prior criminal history different from those without justice involvement?
- Are specific criminal history characteristics associated with an opioid-related overdose death (e.g., prior arrests for heroin offenses, possession charges versus distribution charges, arrests that might indicate life stressors)?

The results from this research can help inform responses to unintentional fatal drug overdoses and identify where and when connections between health and justice systems may be most beneficial.

Section 2: Literature Review

Drug Overdose Trends and Prevalence

Researchers have catalogued different waves of the opioid epidemic by the primary drivers of these opioid-related deaths. Due to the increased prescribing of opioids in the 1990s, death rates from prescription opioid overdoses drastically increased during the early 2000s (dubbed "the first wave of the opioid epidemic"; Centers for Disease Control and Prevention, 2021b). Overdose deaths from heroin use began to increase during the 2010s, with heroin-involved overdose deaths quintupling from 2010 to 2019 ("the second wave"; Centers for Disease Control and Prevention, 2021c). From just 2010 to 2012, heroin death rates doubled for both men and women (Rudd et al., 2014).

Synthetic opioids, primarily fentanyl, are particularly deadly (National Institute on Drug Abuse, 2019). Data indicates that from 2013 to 2019, synthetic opioid-involved deaths increased from 1.0 per 100,000 population to 11.4, an approximately 1,040% increase ("the third wave"; Mattson et al., 2021). Fatal synthetic opioid overdoses were further accelerated during the COVID-19 pandemic (Centers for Disease Control and Prevention, 2021d). In Illinois, research shows a steady increase in overdoses where fentanyl was present, from 73.9% in 2018-2019, to 81.9% in the 29-week period after COVID lockdown was lifted (Mason et al., 2021).

However, opioids are not the only drug for which overdose mortality rates have increased. Deaths from psychostimulants, which include cocaine and methamphetamine, increased 317% from 2013 to 2019 (Mattson et al., 2021). Centers for Disease Control and Prevention data show these trends also worsened through the COVID-19 pandemic, with spikes in psychostimulant overdose deaths noted throughout 2020 (Baumgartner & Radley, 2021). Illinois saw an estimated 41.5% increase in psychostimulant overdose deaths during the first eight months of 2020 alone (Baumgartner & Radley, 2021).

Although rates of overdose death have increased across most age and racial groups within recent years (Scholl et al., 2019), other research has found that middle aged adults, ages 45-54, have the highest rate of drug overdose deaths for all age groups, with non-Latinx White persons having the greatest overdose rate increase from 1999 to 2015 (Hedegaard et al., 2017).

Association Between Overdose and Justice System Involvement

Research has consistently documented the complex nexus between crime and drug use (Brownstein et al., 2003). Though Casavant and Collin (2001) noted that the majority of drug use is "still, for the most part, a sporadic, recreational, exploratory activity" (para. 1), studies have found that drug use can perpetuate or intensify criminal behavior. Crime and drug use are often part of a larger criminal lifestyle that involves other high-risk behaviors, such as risky sex (Lurigio & Swartz, 1999). Once individuals become involved with the criminal justice system, risk for overdose increases (Brinkley-Rubinstein et al., 2018). Each step in the system may have unique associated risks.

Police Contact

As first responders, police officers often come into contact with persons who have overdosed (Tan de Bibiana et al., 2020). Wagner et al. (2015) found that a large proportion of overdose survivors reported that they had syringes confiscated by police in the past six months before their overdose and that police presence caused them to dangerously rush an injection. When an injection is rushed, it can lead to unsafe injection practices, unsafe disposal of syringes, and other risky practices, all of which can increase risk of overdose and vein damage (Small et al., 2006). Local law enforcement policies can affect whether an individual may be arrested at the scene of an overdose which, in turn, can impact risk of death. Bohnert et al. (2011) found that greater police presence in a neighborhood was associated with higher rates of overdose mortality and suggested this may be due to individuals fearing arrest at the scene and thus being less likely to call for emergency services.

Probation and Court Services

Drug law reformers have argued for less use of incarceration as a sentence for drug offenses (The Pew Charitable Trusts, 2018). As a result, more states have moved toward community supervision, such as probation or court supervision, as a sentence for persons using substances who encounter the justice system (Nguyen, 2015). Persons on probation or under court supervision must comply with court-ordered conditions in order to avoid jail or prison. Although some programs require substance disorder treatment, this is not the case for all programs (Kelly et al., 2013). In some cases, probation and court services may oppose medication-assisted treatment for opioid use disorder, such as the use of methadone, buprenorphine, and naltrexone. This can lead to increased risk of overdose, particularly if medication treatment is abruptly ended (Csete, 2020; Reichert & Gleicher, 2017).

Incarceration and Reentry

Research has noted a link between incarceration, drug use, and potential overdose. Approximately 17% of persons incarcerated in state prisons and 19% of persons incarcerated in jails report regularly using opioids, with many more reporting symptoms of withdrawal (Substance Abuse and Mental Health Services Administration [SAMHSA], 2019). Over half of persons incarcerated meet the criteria for a substance use disorder (Bronson et al., 2017). While incarcerated, few persons receive effective substance use treatment and medication-assisted treatment is rarely offered (Brinkley-Rubenstein et al., 2018).

Both upon entry into and exit from the criminal justice system, risk for fatal overdose increases, particularly in the immediate weeks following release from incarceration (Merrall et al., 2010). Winkelman et al. (2018) suggested that due to the strong association between opioid use and incarceration, opioid treatment for individuals should begin while they are incarcerated and cross-system treatment between the justice and healthcare systems should be enhanced. However, Winkelman et al. (2018) acknowledged that funding barriers make this level of treatment difficult to achieve. Although treating substance use in jails and prisons would likely reduce costs to the public over time, experts have noted that correctional staff time and effort

(i.e., in delivering medical treatment) may be a high burden for facilities to pay upfront (SAMHSA's GAINS Center, 2020).

Post-Release Risk of Overdose. After release from incarceration, factors such as a lack of social support and accountability, mental health disorders, interrupted treatment and lack of available treatment, and instable finances may contribute to stress which can lead to relapse (Binswanger, et al. 2012). Variables such as homelessness and decreased drug tolerance upon release can increase risk for overdose, especially for women (Waddell et al., 2020). Those who return to drug use often use multiple substances—including opioids, benzodiazepines (e.g., Valium, Xanax), and alcohol—which can increase risk of death and complicate the treatment process (Andrews & Kinner, 2012). Ranapurwala et al. (2018) found that the risk of opioid overdose death for persons released from incarceration in North Carolina was approximately 40 times higher than for persons in the general North Carolina population.

Some post-release treatments are more effective than others. For example, a study examining a therapeutic community for individuals released from incarceration found that 79% resumed drug use within five years, though program participants were still more likely to be drug- and arrest-free than those who did not participate (Inciardi et al., 2004). Other strategies have been found to be more effective in reducing overdose deaths among those with prior justice involvement. Evidence-based behavioral therapies, such as contingency management and motivational interviewing, as well as U.S. Food and Drug Administration-approved medications for treating opioid use disorder (i.e., methadone, buprenorphine, naltrexone) can be used to reduce risk for overdose and related offending (Chandler et al., 2009). However, some experience treatment barriers to receiving these medications. Insurance companies do not always cover or reimburse for this treatment, and there is a shortage of both opioid treatment programs and qualified practitioners who are able to prescribe these drugs (The Pew Charitable Trusts, 2020). Expanded Medicaid coverage for these medications shows promise in addressing this treatment barrier, however (Clemans-Cope et al., 2019).

The distribution of naloxone and education surrounding its administration, benefits, and effects may also reduce opioid fatalities (Reichert & Gleicher, 2017). Naloxone, often known by its brand names of Narcan or Evzio, is a safe, non-prescription medication that can reverse the effects of an opioid overdose. In Illinois, police officers and other first responders may carry naloxone. The administration of naloxone is a harm reduction strategy for addressing opioid use disorders with considerable research dedicated to studying its effectiveness (Lynn & Galinkin, 2018). A review from Reichert and Gleicher (2017) noted that naloxone has played a significant role in reducing overdose deaths, with naloxone education and programming resulting in increased survival rates.

Abouk et al. (2019) noted that pharmaceutical distribution of naloxone may reduce fatal overdoses but potentially increase nonfatal emergency department visits, suggesting that expanded distribution should also be paired with effective interventions and treatment referrals. Research has indicated that peer support groups and case management may be promising approaches to assist persons who are using substances and also at risk for HIV and other health related complications, but more rigorous research is still needed to evaluate health outcomes (Tracy & Wallace, 2016).

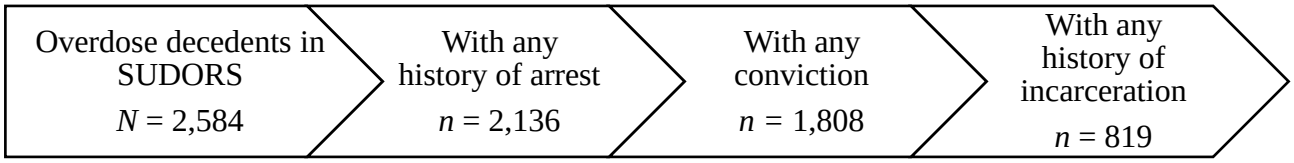
While some strides have been made by the justice system, collaborative and comprehensive responses are needed to address the growing number of persons who die by unintentional fatal overdose, particularly related to increases in opioid and psychostimulant usage. Research has highlighted the relationship between justice involvement and overdose, especially for those who have been recently released from incarceration and may encounter treatment barriers and lack of support (Madras et al., 2020). Continuing to examine the relationship between justice involvement and overdose may help identify intervention points and risk factors that are most relevant during these points.

Section 3: Methodology

Sample

SUDORS data included information on 2,833 persons who died of a fatal opioid-related overdose from July 2017 to December 2018. Identifiers were missing from 245 (8.6%) of these individuals, which made it impossible to determine if they had criminal histories. Thus, they were removed from the dataset, leaving 2,588 individuals. Four individuals were removed because their death date recorded in SUDORS preceded their last arrest recorded in CHRI, which may be because the arrests were attributed to the wrong individual (Figure 1).[3]

Figure 1
Final Study Sample Sizes



Data Sources

Three administrative data sources were used in this study from the Illinois Department of Public Health (IDPH), ISP, and IDOC. The use of this data for this investigation and dissemination of findings was approved by the IDPH Institutional Review Board.

Illinois Violent Death Reporting System

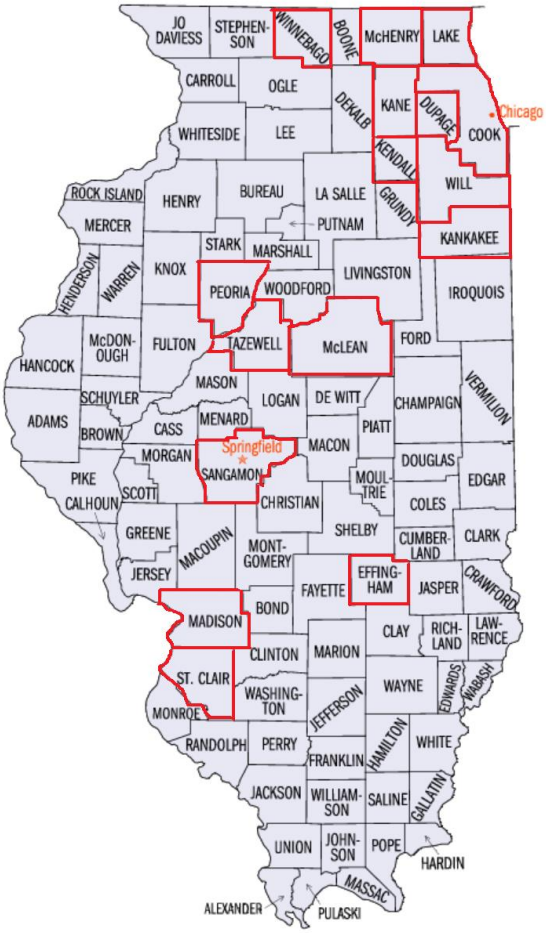
Beginning in 2014, IDPH has been responsible for maintaining the Illinois Violent Death Reporting System (IVDRS). IVDRS data is based on a combination of law enforcement and coroner/medical examiner records. IVDRS data help identify when, how, and why violent deaths occur. SUDORS data is a component of IVDRS. All violent deaths for all age groups are compiled into a national, anonymous database designed to support research efforts for preventing violent deaths (Illinois Violent Death Reporting System, n.d.).

Illinois SUDORS Data. The Illinois SUDORS is housed in the Northwestern University Feinberg School of Medicine Buehler Center of Health Policy & Economics. In conformance with the national SUDORS program, information from death certificates, coroner/medical examiner reports, and toxicology results are compiled in a module of the IVDRS database. Over 1,000 data points are collected, including victim demographics, circumstances surrounding the death (e.g., details regarding emergency response, whether bystanders were present, medical facility information), circumstances experienced by the victim at the time of death (mental health issues, relationship or other life stressors), and toxicology reports.

[3] In CHRI, an individual's fingerprints are matched across all records in the system to generate their criminal history. If the digitized fingerprint data becomes corrupted, two individuals' records can be erroneously linked. An upcoming internal audit of CHRI data may examine how and why this occurs.

Data collection on unintentional opioid-related deaths was initiated in July 2017 in 16 Illinois counties, accounting for 87.4% of all Illinois overdose deaths. Figure 2 shows the distribution of these counties throughout the state. Thirteen counties were in northern and central Illinois. In 2019, an additional 14 counties joined SUDORS, but these counties were not included in this analysis.

Figure 2
Illinois Counties in SUDORS through 2018



Note. Map of Illinois adapted from Illinois Townships Map: https://www.toi.org/Resources/illinois-townships-map/

Illinois Criminal History Record Information

The ISP CHRI data includes arrest, demographic, sentencing, and custody information. Fingerprints are used to tie individual arrest records together through a unique state identification number. Fingerprint information is captured by local police departments through a paper card or the state's Livescan system. This information is limited to incidents occurring in Illinois. Local police departments must submit information to ISP within 24 hours of an arrest. State's attorneys

and circuit court clerks submit court disposition information within 30 days. IDOC and county sheriff's submit information within 30 days of a custodial event. ISP provides this information to ICJIA for research purposes.

Illinois Department of Corrections Data

The prison admit and prison exit datasets from IDOC included individual records containing demographics, holding charges, sentence information, and personal identifiers. Also included are individuals' admissions and exit files, which can be used to determine lengths of stay, as well as their most recent prison exits and other accompanying information (e.g., whether individuals are discharged or released to parole).

Procedure

SUDORS data contains death certificate numbers used to initiate the case. For this study, a representative from SUDORS worked with IDPH Vital Records Department to obtain the personal identifiers recorded on those death certificates. SUDORS staff also combined the fatal opioid overdose records from the 16 participating counties.

ICJIA Center for Criminal Justice Data and Analytics researchers ascertained matches between the SUDORS and CHRI data using names and dates of birth recorded on the death certificates. These personal identifiers were matched with adult prison (IDOC) records to capture criminal justice information not included in the CHRI records, particularly prison exit dates. The resulting analysis dataset was stripped of names and loaded into a secure SQL database for analysis, accessible only to project researchers.

After the variables were merged into one dataset, additional data cleaning procedures commenced. Research staff were given a list of first names, last names, and dates of birth for the individuals who should match in SUDORS. In rare instances, individual arrest events were excluded if the first and last initials and/or dates of birth associated with the arrest did not match SUDORS identifiers. The final arrest dataset included 28,403 arrests and 41,976 arrest charges for 2017 and 2018 for analysis. The final dataset also contained 22,060 convictions for analysis.

Analysis

IBM SPSS Statistics Version 24 was used to perform the statistical analyses in this report. Descriptive statistics were used to identify demographics of those in the SUDORS dataset. Chi-square tests were used, when possible, to examine whether there were statistically significant differences between overdose decedents with and without a criminal history. Chi-square tests can be used to show a relationship between categorical variables (i.e., variables with a fixed label, such as gender or race). In this study, categorical variables included decedent demographics and criminal history. Chi-square tests generate a "p-value" that describes the likeliness that a study's findings would have occurred through random chance. The smaller the p-value, the less likely the results would have occurred through random chance. In this report, a p-value of less than .05 is considered a statistically significant finding.

The full combined dataset contained hundreds of variables for analysis from law enforcement, the coroner/medical examiner reports, and toxicology results. Variables examined for this report were chosen based upon information gathered in a literature review and relevant policy and research questions. Variables included individual demographics, both for those with and without arrest history, and where individuals died, both at the county level and in individual incidents. This could inform where and to whom services should be targeted. Next, the circumstances of the overdose were examined for those with and without criminal history. Persons with criminal histories may be less likely to call for emergency services after an overdose, as police are often the first responders. These drug users may have outstanding warrants and may not want to be identified by police (Kim et al., 2009). Knowing how the overdose occurred (e.g., via injection, ingestion) and whether bystanders were around would inform how to prevent future overdoses and other diseases. Additional risk factors for overdose identified in previous research, beyond criminal justice involvement, were also of interest (e.g., any mental health disorders, history of known substance misuse/abuse), as well as whether these individuals had participated in treatment in the past.

Finally, identifying individuals' arrest charges and convictions could inform who may be most at risk for overdose and should, when possible, be prioritized for treatment. As research has shown that persons who use drugs are at risk for overdose in the time period following criminal justice system involvement (Madras et al., 2020), I examined this variable to determine when treatment could be introduced most effectively. Many of the remaining variables, while medically relevant, were deemed beyond the scope of this study.

Study Limitations

There were limitations to this study. First, although data from 2017 and 2018 was initially available in SUDORS, all of the 245 individuals removed for missing identifiers in SUDORS were from 2017. This made year-to-year comparisons challenging, as the sample for 2017 was moderately reduced. The descriptive statistics also may have been affected by their removal. Further, these findings may not be generalizable to overdose decedents in 2020 or 2021. Second, not all criminal activity comes to the attention of law enforcement and results in an arrest. Therefore, some individuals may be incorrectly classified as having no criminal history. Those with a recorded criminal history may also have been falsely accused or been found not guilty. Finally, SUDORS data may not be representative of statewide overdoses, as some Illinois counties do not participate in the program. Rural counties, specifically in the far western, eastern, and southern parts of Illinois, were underrepresented.

Section 4: Study Findings

Description of Full Sample

Overall, high proportions of overdose decedents in SUDORS were male, White, and non-Latinx. On average, overdose decedents were 42.16 years old (Table 1). Most overdoses occurred in Cook County (59.8%), with the next largest number of overdoses occurring in Winnebago County (6.6%), which includes the city of Rockford.

Table 1
Demographics of Overdose Decedents (n = 2,584)

Characteristic	*n*	%
Sex		
Male	1,913	74.0
Female	671	25.9
Race		
White	1,778	68.8
Black	789	30.5
Other	27	1.0
Unspecified	<10	<1
Ethnicity		
Latinx	265	10.3
Non-Latinx	2,117	82.0
Unknown	202	7.8
Age (Mean)	42.1	--
Age (Median)	42.0	--
Minimum	14	--
Maximum	77	--
Age group		
14-25	259	10.0
26-35	644	24.9
36-45	590	22.8
46-55	625	24.2
56+	465	18.0

Note. Based on 2017-2018 Illinois SUDORS overdose fatality records. In the dataset, race was originally split into multiple true/false variables that were then recoded into White, Black, or Other. The Other category includes Asian, American Indian or Alaska Native, and Native Hawaiian/Other Pacific Islander. Age was unknown for one overdose decedent. Race may equal more than total sample, as individuals could be coded for more than one race.

Overdose death rates by race and ethnicity per 100,000 population (in 2017 and 2018 in the 16 SUDORS counties) were 13.7 for White persons and 24.3 for Black persons. The rates were 13.2 for non-Latinx and 6.5 for Latinx individuals.

Comparison of Overdose Decedents With and Without Prior Arrests

The following sections explore differences in the characteristics of overdose decedents with and without arrest history.

Overdose Deaths by County

Table 2 shows the distribution of SUDORS overdose decedents by arrest history (prior arrests vs. no prior arrests) and county. Cook County accounted for the majority of overdoses for both categories (59.8% of overdoses overall).[4]

Table 2
Distribution of Overdose Deaths by County and Arrest History (n = 2,584)

	No arrest		Prior arrest		
County	*n*	% of county total	*n*	% of county total	% of total decedents
Cook	252	16.3	1,294	83.7	59.8
DuPage	28	20.9	106	79.1	5.2
Effingham	<10	28.6	<10	71.4	0.3
Kane	10	17.2	48	82.8	2.2
Kankakee	10	25.6	29	74.4	1.5
Kendall	<10	23.1	10	76.9	0.5
Lake	14	18.4	62	81.6	2.9
Madison	20	20.2	79	79.8	3.8
McHenry	<10	14.3	48	85.7	2.2
McLean	<10	22.2	28	77.8	1.4
Peoria	11	13.3	72	86.7	3.2
Sangamon	<10	11.9	37	88.1	1.6
St. Clair	14	23.0	47	77.0	2.4
Tazewell	<10	30.4	16	69.6	0.9
Will	24	17.1	116	82.9	5.4
Winnebago	32	18.7	139	81.3	6.6

Note. Percentages calculated by row and may not equal 100% due to rounding.

Demographics of Overdose Decedents

Most overdose decedents had an arrest history (*n* = 2,136, 82.7%). Table 3 compares demographic characteristics for overdose decedents with and without arrest history. A high proportion of overdose decedents with prior arrests were White, non-Latinx males in their 40s, reflecting the overall sample. However, there was a greater proportion of men with prior arrests (76.0%) than without prior arrests (64.7%). Additionally, there was a greater proportion of

[4] Due to the confidentiality of CHRI and SUDORS data, any results showing less than 10 records were masked. This condition is also outlined in the latest Memorandum of Understanding between ICJIA and ISP.

individuals with prior arrests who were Black (33.3% Black) than individuals without arrests (17.2% Black).

I used chi-square tests to compare those with and without arrest history. In SUDORS, race was classified as separate dichotomous true/false variables (e.g., White—true/false, Black—true/false, Asian—true/false). I then recoded this into three distinct true/false variables of White, Black, and Other. This allowed for separate chi-square tests by each race. The combined Other category, which included Asian, American Indian or Alaska Native, and Native Hawaiian/Other Pacific Islander, prevented the need for excess data masking if those categories were left uncombined due to their small numbers. There were statistically significant associations between overdose decedents with and without arrest history by sex, $X^2(1, n = 2{,}584) = 24.39$, $p = .000$; and race, specifically White, $X^2(1, n = 2{,}584) = 40.51$, $p = .000$; and Black, $X^2(1, n = 2{,}584) = 45.52$, $p = .000$.

Table 3

Demographics of Overdose Decedents With and Without Prior Arrests (n = 2,584)

Characteristic	No arrest		Prior arrest	
	n	%	*n*	%
Sex				
Male	290	64.7	1,623	76.0
Female	158	35.3	513	24.0
Race				
White	365	81.5	1,413	66.2
Black	77	17.2	712	33.3
Other	<10	<2	21	0.9
Unspecified	<10	<1	<10	<1
Ethnicity				
Latinx	58	12.9	207	9.7
Non-Latinx	352	78.6	1,765	82.6
Unknown	38	8.5	164	7.7
Age (Mean)	39.5	--	42.7	--
Age (Median)	38.0	--	43.0	--
Minimum	14	--	16	--
Maximum	70	--	77	--
Age groups				
14-25	84	18.8	175	8.2
26-35	119	26.6	525	24.6
36-45	79	17.7	511	23.9
46-55	93	20.8	532	24.9
56+	72	16.1	393	18.4

Note. Race may equal more than total sample, as individuals could be coded for more than one race. Age was unknown for one decedent.

Drug Overdose Death Circumstances

Table 4 displays the locations where individuals died of an overdose. Almost half of persons in the full sample died in their homes (44.8%). Approximately one-third (30.4%) were categorized as dying in other locations; primarily friends' or family member's homes, abandoned buildings, motels, and parking lots. Chi-square tests revealed no significant differences in overdose locations between those with and without an arrest history.

Table 4

Locations of Death of Overdose Decedents With and Without Prior Arrests (n = 2,561)

Location	No arrest		Prior arrest	
	n	%	*n*	%
Hospital or emergency department	98	21.9	508	23.8
Long-term care	<10	<1	10	0.5
Home	226	50.4	932	43.6
Other	119	26.6	666	31.2

Note. Location information was missing for 23 persons. Percentages may not equal 100% due to rounding. "Long-term care" refers to hospice or a nursing home. The "Other" category includes dead on arrival and undetermined cases.

SUDORS data included information on whether individuals were recently released from a secure facility—specifically, a medical or psychiatric hospital or long-term residential care. In this case, *recently* was defined as within three months of the fatal overdose. Secure facility release prevalence for those with and without arrest history are shown in Table 5. For this variable, 88 persons with recent release from jail, prison, or detention facility were removed in order to not violate the rules of a chi-square test, as it would be impossible to be recently released from those locations without history of arrest. Approximately 6% of decedents (*n* = 161) had experienced a recent release prior to their deaths. A chi-square test showed no statistically significant association between arrest history and recent release from a secure facility of any type.

Table 5

Evidence of Recent Release from Secure Facilities for Overdose Decedents (n = 2,490)

Secure facility release status	No arrest		Prior arrest	
	n	%	*n*	%
No evidence of recent release	413	92.6	1,916	89.9
Hospital or psychiatric institution	19	4.3	72	3.4
Residential facility	10	2.2	45	2.1
Unknown type of institution	<10	<1	14	0.7

Note. Information on this variable was missing for six persons. Percentages may not equal 100% due to rounding.

Evidence of how the drugs were administered in a decedent's fatal overdose was available in SUDORS. Table 6 compares drug administration routes for persons with and without a prior arrest. Each administration route was recorded as a distinct true/false variable which allowed for

separate chi-square tests (i.e., evidence of injection by no evidence of injection). For this variable, I was specifically interested in comparing groups for each individual administration route, as less research has examined differences in route for those with and without criminal histories.

The data showed individuals sampled most commonly injected the drugs (24.8%). There was a statistically significant association between individuals with and without an arrest history for evidence of ingestion, $X^2(2, N = 2{,}584) = 15.29$, $p = .000$. Chi-square tests showed no significant differences for the other routes of administration (i.e., injection, snorting/sniffing) among those with or without prior arrests.

Table 6

Route of Drug Leading to Fatal Drug Overdose With and Without Prior Arrest (n = 2,584)

Route	No arrest		Prior arrest	
	n	%	*n*	%
Evidence of injection	98	21.9	543	25.4
Evidence of snorting/sniffing	65	14.5	317	14.8
Evidence of ingestion	60	13.4	169	7.9
No information on route	225	50.2	1,099	51.6

Note. Administration route information was missing for eight persons. Percentages may not equal 100% due to rounding.

SUDORS recorded whether a bystander was known to be present at the time of the individual's overdose. Although this variable was broken down into specific bystander categories, I recoded this variable into whether any bystander was present at the time of overdose. In the total sample, at least one bystander was present in 28.8% of overdoses. After removing cases coded as "unknown," chi-square tests revealed no significant differences between those with and without an arrest history for bystander presence. However, much of the bystander presence was unknown (Table 7).

Table 7

Presence of Bystanders at Time of Overdose (n = 2,576)

Category	No arrest		Prior arrest	
	n	%	*n*	%
No bystander present	83	18.5	380	18.0
One bystander present	58	12.9	318	14.6
Multiple bystanders present	22	4.9	119	5.5
Bystanders present, unknown number	45	10.0	178	8.7
Unknown if present	240	53.6	1,133	53.3

Note. Information on this variable was missing for eight persons. Percentages may not equal 100% due to rounding.

Behavioral Health History

SUDORS data contained several health history variables. Table 8 shows chi-square test results for these variables comparing those with and without arrests. There were no statistically significant associations between individuals with and without arrests for history of previous overdose, X^2 (1, N = 2,576) = .000, p = .989, and history of substance use treatment, X^2 (2, N = 2,576) = 2.30, p = .316, but there were statistically significant associations for history of mental illness treatment, X^2 (1, N = 2,584) = 7.11, p = .008, and current mental illness treatment X^2 (1, N = 2,584) = 8.59, p = .003.

Table 8

Behavioral Health of Overdose Decedents With and Without Prior Arrests (n = 2,584)

Behavioral health variable	No arrest		Prior arrest	
	n	%	*n*	%
History of previous overdose (OD)				
No previous OD	398	88.8	1,890	88.8
Previous OD at any point	50	11.2	238	11.2
History of treatment for substance use				
No history of treatment	379	84.6	1,819	85.5
History of treatment	69	15.4	309	14.5
History of mental illness treatment*				
No history of treatment	353	78.8	1,794	84.0
History of treatment	95	21.2	342	16.0
Current mental illness treatment*				
Not in treatment	389	86.8	1,950	91.3
Current treatment	59	13.2	186	8.7

Note. Previous overdose and treatment for substance use histories were missing for six individuals.

* $p < .05$.

Information on decedents' opioid and heroin use histories was available in SUDORS. This information is collected from witness reports and coroner/medical examiner reports. The data does not necessarily distinguish between whether the person had a substance use disorder or simply a history of misuse. Table 9 compares persons with and without arrest history for this variable. To run a chi-square, I first recoded individuals into a binary variable of whether they had or did not have any known history of previous substance abuse. The chi-square test showed a statistically significant association between persons with and without arrest histories and histories of substance abuse, X^2(1, N = 2,576) =7.97, p = .005.

Table 9
History of Opioid or Heroin Abuse of Overdose Decedents With and Without Prior Arrest (n = 2,576)

Opioid abuse	No arrest		Prior arrest	
	n	%	*n*	%
No history	171	38.2	666	31.3
Current or past abuse of prescription opioids	29	6.5	69	3.2
Current or past abuse of heroin	160	35.7	918	43.1
Current or past abuse of both prescription opioids and heroin	17	3.8	97	4.6
History of substance abuse, specifics unknown	71	15.8	378	17.8

Note. History of abuse information was missing for eight persons. Percentages may not equal 100% due to rounding.

Information on mental health diagnoses was gathered from both coroner/medical examiner and law enforcement records. The data showed 93 individuals without prior arrests had recorded primary mental health diagnoses (20.8% of those with no prior arrests) and 306 individuals with prior arrests had recorded primary mental health diagnoses (14.3% of those with prior arrests). Persons without prior arrests were more likely known to have depression or dysthymia, which is a long-term but milder form of depression (13.6%), compared to those with prior arrests (7.4%), but overall, much of individuals' mental health histories were unknown.

Having more than one chronic condition, such as multiple mental health diagnoses, is associated with poorer functioning, unnecessary hospitalizations, and adverse drug events (U.S. Department of Health and Human Services, 2010). SUDORS data identified decedents that had more than one known mental health diagnosis. The data showed 155 overdose decedents had more than one mental health diagnosis; 31 of the 93 persons without prior arrests had an additional diagnosis (33.3%) and 124 of the 306 individuals with prior arrests had an additional diagnosis (40.5%).

Overdose Decedents with Prior Criminal Histories

Certain datasets, such as arrest charge data and conviction data, are only applicable to overdose decedents with criminal histories. The following section focuses on these individuals.

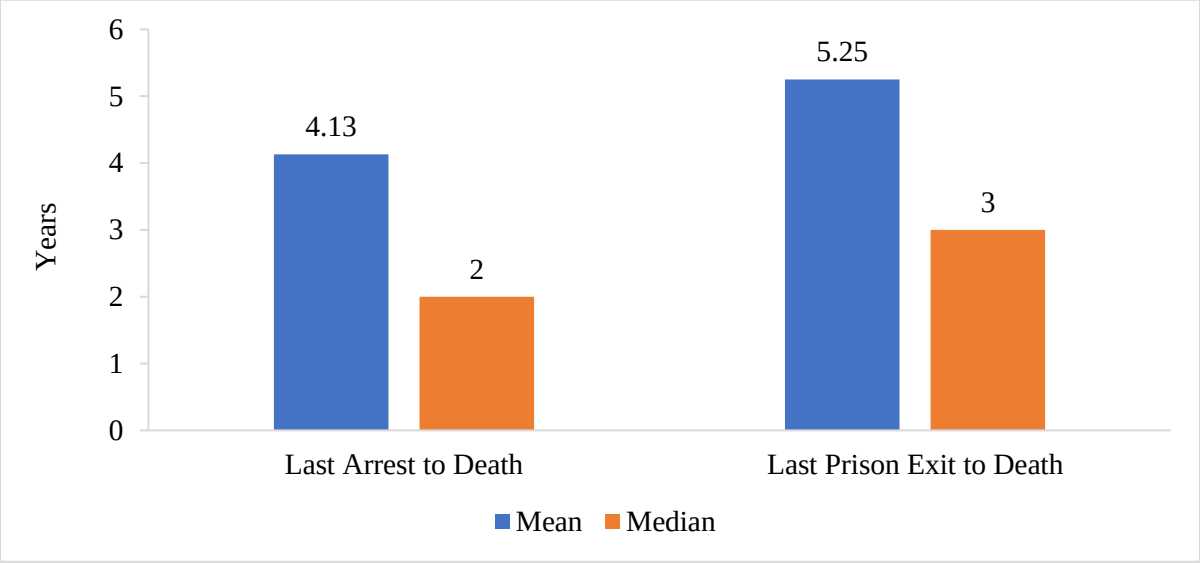
Time from Arrest and Incarceration to Overdose Death

Overdose decedents tended to have long justice system histories, including arrest histories of 17.25 years and incarceration histories of 8.63 years. A combination of CHRI, IDPH, and IDOC data allowed calculations of times between an individual's last arrest and date of death and last prison exit and date of death. Overdose decedents with prior arrests had a mean of 13.3 prior arrests (*SD* = 13.9) and a median of nine prior arrests, with a minimum of one arrest and a maximum of 205 arrests. The mean amount of time between an individual's last arrest and date of death was 4.13 years (*SD* = 5.6), with a range of zero years (i.e., the individual died within the

same year of their last arrest) to 49 years. The median amount of years between last arrest and death skewed lower, at 2.0 years (Figure 3).

Figure 3

Times Between Arrest and Incarceration and Overdose Death (n = 2,584)

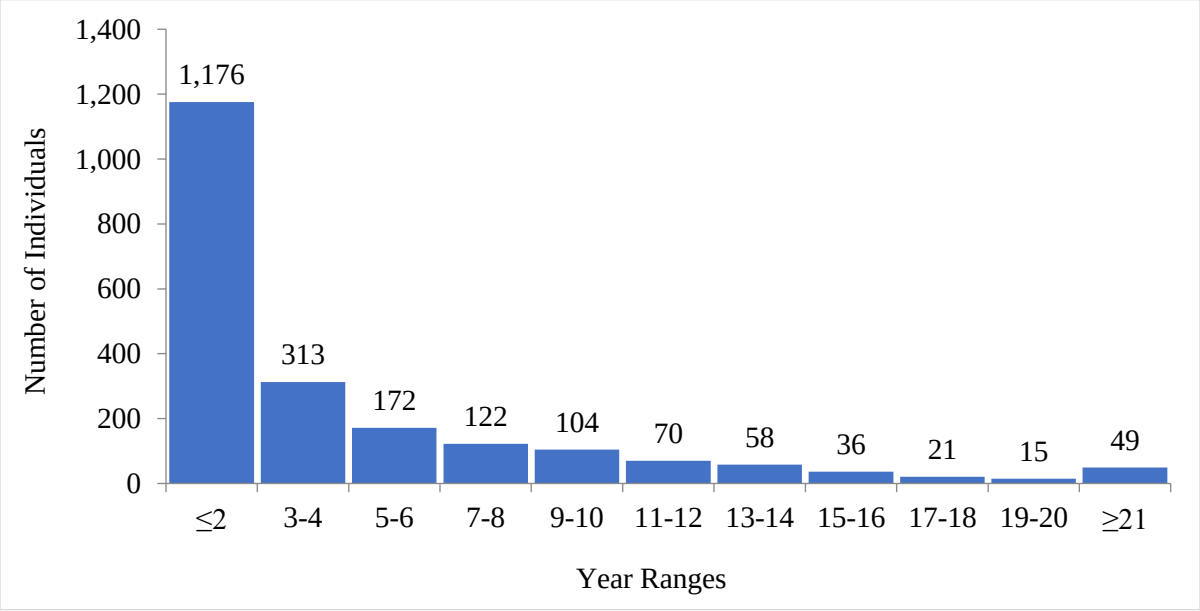


Note. Calculated from combined CHRI, IDPH, and IDOC datasets.

A histogram was created to further separate individuals by the length of time that spanned between their last arrest and death (Figure 4).

Figure 4

Years between Last Arrest and Overdose Death by Number of Individuals (n = 2,136)



As shown in Figure 4, most individuals with a criminal history died within two years after their last arrest, indicating somewhat recent contact with the criminal justice system. When narrowing further, the data indicated that 426 individuals died within six months of their last arrest (19.9% of those with an arrest history), and 36 individuals died within two weeks (1.7% of those with an arrest history).

Arrest Charges

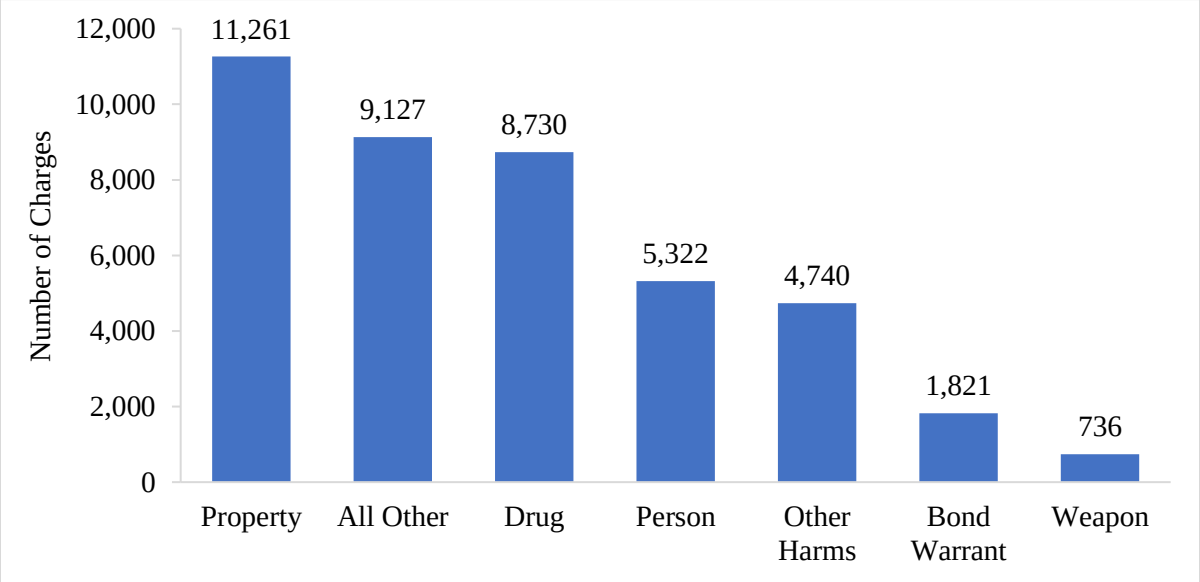
Arrest charge data on overdose decedents with a criminal history was collected from CHRI (Figure 5). Of the 41,986 arrest charges, almost one-third (*n* = 11,261; 26.8% of all charges) were for property crimes. Within property crime-related charges, the charges were most often theft (47.3%), criminal damage and trespass to property (30.5%), and burglary (10.9%).

In CHRI's "All Other" category (*n* = 9,127; 21.9% of all charges), most charges were for ordinance violations (e.g., drinking in public, soliciting unlawful business; 29.6%), traffic code violations (18.9%), and driving with a suspended or revoked license (18.5%).

Drug-related charges were the third largest category of charges experienced by decedents (*n* = 8,730; 20.8% of all charges). The greatest proportion of drug-related charges were for possession of a controlled substance (51.9%); possession of drug equipment (13.2%); and possession of cannabis, 10 grams to 100 grams (6.1%).

Figure 5

Arrest Charges for Overdose Decedents with Prior Arrests by Offense Type (n = 41,737)



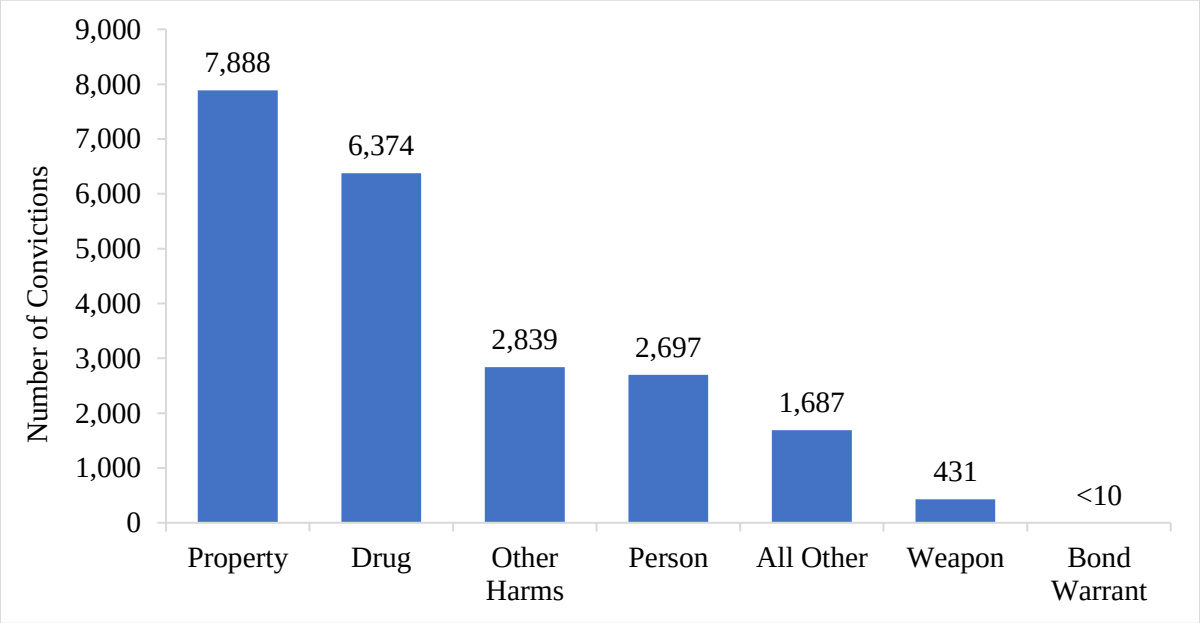
Note. "Other Harms" includes driving under the influence, disorderly conduct, and resisting an officer.

Convictions

A total of 1,808 overdose decedents experienced at least one conviction (69.9% of sampled decedents). While individuals may be charged with several crimes, they may not be found guilty of any. In certain cases, the courts may choose to withhold judgment and sentence an individual to conditional release with reporting requirements that, when fulfilled, could lead to a dismissed case. Overall, individuals were found guilty for 76.8% of all their charges. Just more than 10% of those sampled received withhold judgment/supervision.

Figure 6 shows the offenses for which overdose decedents were convicted. A higher proportion of individuals were convicted for drug offenses, even though more were charged for ordinance and traffic violations in the All Other category.

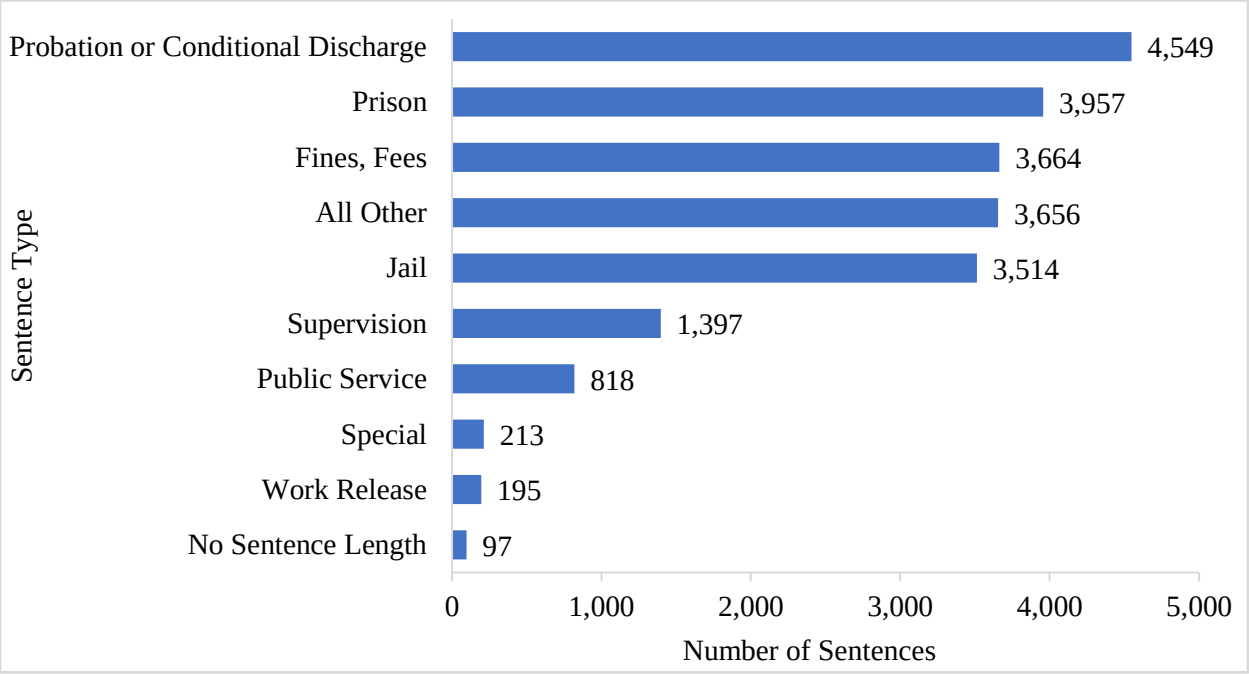
Figure 6
Convictions of Overdose Decedents by Offense Type (n = 21,918)



Of overdose decedents with a conviction, 20.6% were sentenced to probation or conditional discharge, 17.9% were sentenced to prison, 15.9% sentenced to jail, and 16.6% received sentences of fines or fees (Figure 7).

Figure 7

Sentence Types and Totals for Overdose Decedents With a Conviction (n = 22,060)



Note. A single arrest incident may have led to multiple sentences. "No Sentence Length" includes life or death sentences, repair of criminal damage to property, and sentences merged with another sentence. "Fines, Fees" includes cost penalties and restitution. The "Special" category includes sentences to treatment, special training (e.g., vocational training), and DUI and driver's education. The "All Other" category includes juvenile detention, boot camp, and credit for time served.

Overdose Decedents with Prior Incarcerations

A total of 819 overdose decedents sampled had prior incarcerations (31.7% of all decedents, 38.3% of those with any arrest history). Over the course of their lifetimes, 2,931 admissions were recorded for these 819 decedents, the majority for new sentences (80.8%). The remaining admissions were for technical violations (19.1%) or other reasons (0.1%). Individuals had a mean of 3.56 admits (*SD* = 2.95) and a median of 3.0 admits, with a minimum of one admit and a maximum of 18 admits. The vast majority of individuals were released to parole (89.2%).

Overall, individuals with incarceration histories were most often White, non-Latinx males (Table 10). However, the percentage of Black individuals increases when examining those with incarceration history, as only 22.9% of those without incarceration history were Black, compared to 47.0% of those with incarceration history. Again, in SUDORS, race was classified as separate dichotomous true/false variables allowing for chi-square tests for each race. Chi-square tests showed there were statistically significant associations between individuals with and without incarceration history for sex, $X^2(1, n = 2{,}584) = 50.47$, $p = .000$; and race, specifically White, $X^2(1, n = 2{,}584) = 144.10$, $p = .000$ and Black, $X^2(1, n = 2{,}584) = 153.42$, $p = .000$.

Table 10

Demographics of Overdose Decedents With and Without Incarceration Histories (n = 2,584)

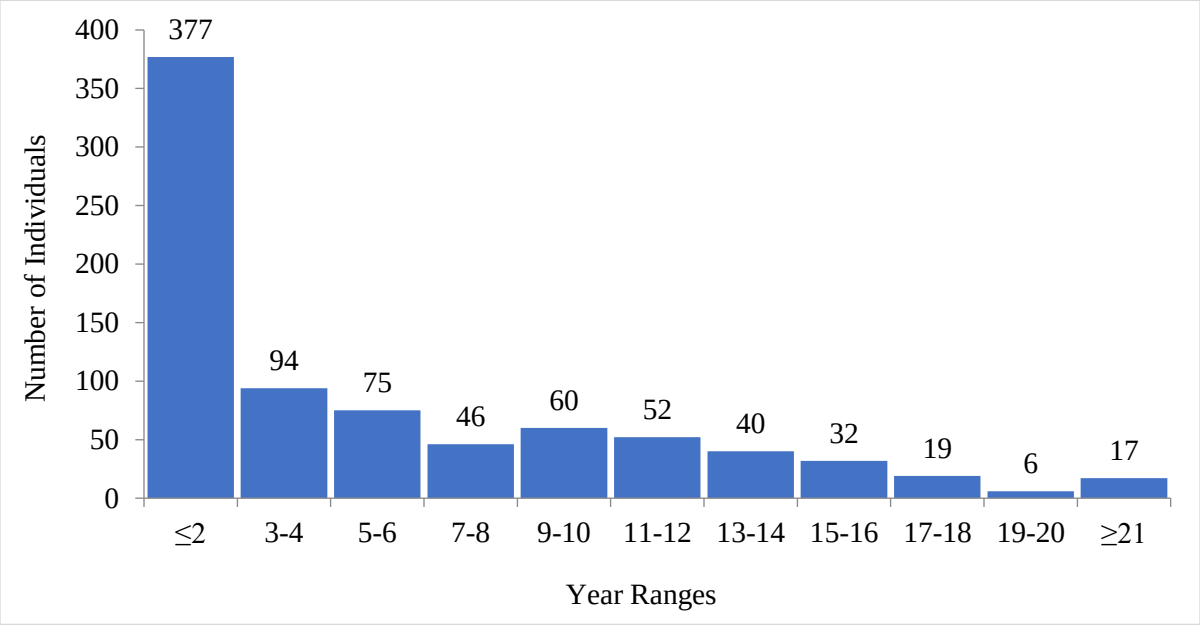
Characteristic	No prior incarceration		Prior incarceration	
	n	%	*n*	%
Sex				
Male	1,233	69.9	680	83.0
Female	532	30.1	139	17.0
Race				
White	1,346	76.3	432	52.7
Black	404	22.9	385	47.0
Other	13	0.7	<10	<1
Unspecified	<10	<1	0	0
Ethnicity				
Latinx	195	11.0	70	8.5
Non-Latinx	1,444	81.8	673	82.2
Unknown	118	6.7	73	8.9
Age (Mean)	40.8	--	44.9	--
Age (Median)	40.0	--	46.0	--
Minimum	14	--	20	--
Maximum	77	--	72	--
Age groups				
14-25	230	13.0	29	3.5
26-35	487	27.6	157	19.2
36-45	373	21.1	217	26.5
46-55	359	20.3	266	32.5
56+	315	17.8	150	18.3

Note. Based on 2017-2018 Illinois SUDORS overdose fatality records. In the dataset, race was originally split into multiple true/false variables that were then recoded into White, Black, or Other. The Other category includes Asian, American Indian or Alaska Native, and Native Hawaiian/Other Pacific Islander. Race may equal more than total sample, as individuals could be coded for more than one race. Ethnicity information was missing for three individuals.

Another histogram was created for individuals recently released from incarceration until their time of death (Figure 8). Over 350 individuals died within two years of their prison exit (42.8% of those with prison histories); 167 individuals died within six months post-release (20.4% of those with prison history); and 59 individuals (7.2% of those with prison history) died within two weeks.

Figure 8

Time between Prison Exit and Overdose Death (n = 818)



Note. Information missing for one individual.

Most overdose decedents examined did not have histories of incarceration; however, data showed that many of those who did were admitted to prison multiple times—70.0% of those with at least one admit had multiple admits over the course of their lifetimes. The data also showed those released from prison were at greater risk for fatal overdose shortly after exit.

Section 5: Recommendations for Policy and Practice

Most decedents whose fatal overdose was recorded in SUDORS from July 2017 through December 2018 were justice-involved. Approximately 82.7% of overdose decedents had interacted with the criminal justice system—ranging from police contact and probation and court services, to time spent in jails and prisons. Overdose decedents who had criminal histories had lengthy involvements with the system, with arrest histories lasting approximately 17 years on average and incarceration histories lasting approximately eight years on average. Based on these findings, I offer several recommendations to reduce overdose morbidity and mortality.

Identify Opportunities for Justice System Intervention and Harm Reduction

Screening, treatment, harm reduction strategies, and recovery support can be offered at various points within the criminal justice system. To guide practitioners, ICJIA researchers developed continuums which can delineate specific intervention points in the system and identify evidence-based strategies at each point (i.e., law enforcement, initial detention, courts, correctional institutions, and reentry) (Gatens, 2019; Gleicher, 2019b). A continuum can guide planning and implementation of services, as well as highlight service gaps and the needs of the community. One of the most important tools for practitioners at all points in the criminal justice system is the use of, and distribution of, naloxone to prevent and reverse opioid overdose (Heavey et al., 2018).

Those with substance use disorders often have a high burden of mental health problems and other health concerns, so the continuum approach can be an effective method for comprehensively targeting an individual's needs and preventing overdose (National Institute of Mental Health, 2021; Winhusen et al., 2020). Substance use and mental health treatment must be integrated and targeted to those with highest risk. Although universal prevention can be effective at the community level, persons with dual diagnoses and criminal justice involvement benefit most from tailored treatment that continues uninterrupted between these intervention points (Young et al., 2018). In this study, 15.4% of decedents had a recorded mental health diagnosis; however, this does not account for all mental health problems or illnesses that went unrecorded or undiagnosed. Screening and professional evaluation should be prioritized for those coming into contact with the system to ensure connection with appropriate services.

Police Deflection and Pre-Arrest Diversion

Current study data showed a large proportion of drug overdose decedents experienced arrests prior to fatally overdosing. This finding is consistent with other research that indicates drug users have frequent contact with the criminal justice system (Hickman et al., 2007). In response, some police departments have developed pre-arrest diversion programs to offer a warm handoff to substance use disorder treatment providers, diverting individuals away from justice system involvement. Pre-arrest diversion programs give officers flexibility on how to respond to drug offenses. Rather than defaulting to arrest, officers may withhold or even drop charges if an individual completes a drug treatment program (Kopak & Gleicher, 2020).

Some departments operate deflection programs that allow drug users to voluntarily contact the police for information and access to treatment without fear of arrest or punishment (Reichert & Gleicher, 2017). In Illinois, Lake County developed A Way Out, a police-led treatment referral program, where individuals can enter any participating police station to seek treatment. Individuals are not criminally charged nor turned away, even if they cannot afford treatment (Reichert et al., 2021). Though these programs are relatively new, research shows they may be promising methods for addressing major substance use treatment barriers for drug users (e.g., long treatment waiting lists and lack of transportation to treatment) (Reichert et al., 2021). Data from the current study showed White, non-Latinx males in their 40s may be at greatest risk and should be targeted for services. More rigorous studies are needed on the specific mechanisms within deflection/diversion programs that help interrupt the cycle between justice involvement and overdose, but existing research suggests these programs can be beneficial (Barberi & Taxman, 2019; Reichert & Gleicher, 2017).

Police-led partnerships with public health agencies are an emerging strategy for addressing overdose. There are four categories of these partnerships: multidisciplinary team visits, police visit with referrals, clinician outreach, and location-based outreach (Formica et al., 2018). In a multidisciplinary team, police officers and public safety representatives respond to a person's home following an overdose to implement safety plans and link them with treatment. Safety plans can involve sharing information on how naloxone works and distributing take-home naloxone, encouraging individuals to use safely (e.g., clean needles in safe spaces), and advising individuals to avoid polysubstance use (Hadland, 2019). Multidisciplinary teams can increase service engagement, but more evaluation is still needed to assess their full impact (White et al., 2021).

Probation and Court Services

Probation and conditional discharge were common sentences for overdose decedents with criminal histories. Probation and court services offer another opportunity for intervention among persons using substances. Probation officers can connect and refer individuals to substance use and mental health disorder treatment (National Institute on Drug Abuse, 2018). Research suggests that probation officers may lack detailed knowledge regarding medication for opioid use disorder. Therefore, training is recommended for probation officers to increase knowledge related to substance use disorders and the utility of medication available to treat those disorders (Reichert & Gleicher, 2019).

Drug Courts. Drug courts offer an evidence-based strategy for addressing the ongoing and sometimes challenging nature of assisting justice-involved individuals with substance use disorders. These courts are operated by a collaboration of stakeholders (e.g., judges, law enforcement, treatment providers, social workers) that assist participants with support for their recovery (National Institute of Justice, 2020). Drug courts can help prevent overdose of justice-involved individuals with substance use disorders through screening, treatment, and monitoring (Logan & Link, 2019). Research suggests it is important for drug courts to support medication-assisted treatment (i.e., methadone, buprenorphine, naltrexone) as opposed to abstinence or zero-tolerance policies which may be harmful to individuals with opioid use disorder (Brinkley-Rubinstein et al., 2018).

Prisons and Jails

Intervention can occur in prison and jail settings. In this study, 167 individuals died within six months post-prison exit. Consistent with previous research, this finding suggests individuals who are incarcerated should be screened for substance use and provided treatment both while incarcerated and upon transition back into society, which is a particularly high-risk period for relapse and overdose (Binswanger et al., 2013).

In Correctional Institutions. In a study by Reichert et al. (2018), 22% of Illinois jail administrators surveyed reported having no protocol or being uncertain of whether a protocol existed to manage detainees' withdrawal symptoms. Training correctional staff to identify and effectively handle withdrawal symptoms can be lifesaving. Persons with a substance use disorder, and in particular, opioid use disorder, should be monitored for withdrawal symptoms upon entering a correctional institution. Withdrawal complications may include nausea and vomiting, diarrhea, and suicidal ideation, which could result in death (Reichert et al., 2018). Persons with untreated withdrawal symptoms may engage in drug-seeking behavior to avoid those symptoms (Kosten & Baxter, 2019). Medication-assisted treatment has also been found to be effective for safe withdrawal management and can assist individuals with opioid use disorders, but this treatment should be closely monitored and continued once they re-enter their communities (Reichert et al., 2018).

Although many individuals require withdrawal management and substance use treatment while incarcerated, mental health treatment is also necessary to reduce adverse outcomes (Mears & Cochran, 2012). Individuals with dual diagnoses should be fully evaluated by a trained professional when incarcerated and receive a treatment plan that matches their level of need (Washington State Department of Social and Health Services, 2020). During incarceration, teaching overdose prevention and how naloxone can be used may also be effective in reducing overdose after release (Grella et al., 2021). This education and prevention strategy should extend to prison visitors who have been affected by overdose in some capacity (Huxley-Reicher et al., 2018).

Upon Release. This study found that a large proportion of overdose decedents passed away shortly after their release from incarceration—a finding consistent with previous research (Joudrey et al., 2019). For most individuals, there was only a median amount of three years between prison exit and death. Ensuring continuity of care that begins once a person enters jail or prison and continues through community reentry is important when working with diagnosed substance users, as risk for overdose is reduced if treatment is continued (Worobiec & Herdman, 2020). Conducting follow-up with released individuals who are known to use or have used substances could be important for monitoring risks known for overdose (e.g., social stressors, middle age, history of mental illness) (Lim et al., 2016). Providing naloxone kits and education to returning citizens also has shown promise in reducing overdoses and is a practical strategy for engaging communities at risk without the need for professionally trained responders (Wenger et al., 2019). These strategies are supported by research which shows that threatening punishment for drug use is generally less effective than providing education and rehabilitation services (Wenger et al., 2019).

Continue Research on Overdose and Criminal Justice Involvement

This study described characteristics of those who experienced a fatal drug overdose, comparing those with and without criminal histories (arrests and incarcerations). Further research is needed to identify and evaluate cross-disciplinary interventions that are effective in preventing fatal overdoses within this population, particularly as new risk factors are identified. Research from Larochelle et al. (2019) identified eight touchpoints associated with increased risk for opioid death:

1. High dosage of morphine-equivalents
2. Having a prescription for both an opioid and benzodiazepine
3. Having multiple opioid prescribers
4. Having multiple opioid-prescription-filling pharmacies
5. Having an inpatient withdrawal episode (i.e., opioid detoxification)
6. Experiencing a nonfatal opioid overdose
7. Having a potential injection-related infection requiring emergency care
8. Experiencing a release from incarceration

Future studies should continue to develop and investigate age- and sex-related targeted prevention efforts that address these touchpoints (Larochelle et al., 2019).

Overall, encouraging substance use education and treatment at each stage of the criminal justice system and beyond—beginning with police contact, through potential court services and incarceration, and continuing upon reentry into society—may reduce fatal drug overdoses. Upcoming research should identify treatment barriers in criminal justice settings and develop strategies for matching an individual's needs and types of services received (Belenko et al., 2013). As SUDORS data collection expands throughout Illinois, continuing comprehensive linkages between medical and criminal justice data will help identify which strategies work best and for whom.

Section 6: Conclusion

Fatal drug overdoses, particularly from opioid usage, have continued to grow in recent years and have prompted calls for research into how these increasing trends can be reversed. Identifying risk factors and opportunities for intervention and treatment for persons using substances is needed, especially for those recently released from incarceration (Kinner et al., 2020). Although this study only used SUDORS data from July 2017 to December 2018 in participating counties, and therefore could not account for all drug overdoses in Illinois, the results provided a clearer picture of those who experienced a fatal opioid-related overdose in this time period.

As shown in the data, over 80% of persons who died from unintentional drug overdoses had a criminal history. Of those recorded, individuals' histories often included multiple arrests and sometimes incarcerations over the course of many years, indicating multiple opportunities to connect these persons with much-needed substance use treatment and other medical treatment (e.g., mental and physical health care).

Many individuals sampled had several drug-related charges and convictions on their records that could have indicated risk for future drug overdose. Most individuals with criminal histories who died of a drug overdose lived for only a few years after a release from prison, pointing to an urgent need for comprehensive and effective reentry care. Though the proportion of persons with and without criminal histories did not differ greatly on most demographic characteristics, it was notable that persons with involvement in the justice system were significantly more likely to be Black. Future studies should investigate these racial disparities which may be related to systemic or attitudinal bias in the criminal justice system (Grella et al., 2020).

Criminal justice practitioners should seek training on evidence-based methods for assisting individuals with substance use disorders. Encouraging partnerships between law enforcement and behavioral health providers, such as those seen in A Way Out, may be promising methods for reducing overdose fatalities. Finally, continuing this type of research will help identify at-risk individuals who could be expedited into screening and treatment. As SUDORS county participation continues to grow, researchers may soon be able to identify and compare regional differences within this population.

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