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February 14, 2018

# Postincarceration Fatal Overdoses After Implementing Medications for Addiction Treatment in a Statewide Correctional System

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As the epidemic of opioid use in the United States continues to shift from prescription opioids to illicit drugs,<sup>1</sup> more people living with opioid use disorder are encountering the criminal justice system. Most US correctional facilities do not continue or initiate medications for addiction treatment (MAT).<sup>2</sup> This is especially unfortunate given the higher rates of opioid overdose immediately after release from incarceration.<sup>3</sup>

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#### Postincarceration Fatal Overdoses After Implementing Medications for Addiction Treatment in a Statewide Correctional System

As the epidemic of opioid use in the United States continues to shift from prescription opioids to illicit drugs,<sup>1</sup> more people living with opioid use disorder are encountering the criminal justice system. Most US correctional facilities do not continue or initiate medications for addiction treatment (MAT).<sup>2</sup> This is especially unfortunate given the higher rates of opioid overdose immediately after release from incarceration.<sup>3</sup>

In July 2016, a new model of screening and protocolized treatment with MAT (including methadone, buprenorphine, or naltrexone) launched at the Rhode Island Department of Corrections (RIDOC), a unified prison/jail. A community

Institute Inc) with 2-sided  $P < .05$  considered statistically significant. The Rhode Island Hospital institutional review board approved this protocol with a waiver of written informed consent.

**Results |** Statewide in Rhode Island, there were 179 overdose deaths from January 1, 2016, to June 30, 2016, compared with 157 overdose deaths during the same period in 2017, a reduction of 12.3%. Characteristics of decedents included in the 2017 group were generally comparable with those of decedents in 2016, but the 2017 group was slightly older and less likely to be of white race/ethnicity (**Table 1**). Most deaths from overdose were fentanyl-related. For decedents who were recently incarcerated, there were no statistically significant differences in characteristics of those decedents in 2016 vs 2017. The total number of admissions and release from incarceration were similar over time. How

vendor with statewide capacity to provide MAT after release was engaged to help run the program in November 2016, and all sites were operational by January 2017. Individuals arriving into RIDOC while receiving MAT were to be maintained on their respective medications regimen without tapering or discontinuing their medications. Contemporaneously, a system of 12 community-located Centers of Excellence in MAT was established to promote transitions and referrals of inmates released from RIDOC. This analysis examines preliminary association of the program with overall overdose fatalities and deaths from overdose among those individuals who were recently incarcerated.

**Methods** | We conducted a retrospective cohort analysis linking data from the Rhode Island Office of State Medical Examiners for all unintentional deaths from overdose occurring from January 1 to June 30, 2016, and from January 1 to June 30, 2017, to data from RIDOC inmate releases. Decedents were defined as individuals who were recently incarcerated if they died within 12 months of release from RIDOC. Descriptive statistics of decedents include summarized demographics, the status of incarceration, and the number of fentanyl-related overdoses. Aggregate data of inmates released from RIDOC, counts of naloxone provided to inmates after release, and the monthly receipt of MAT were also reported. Risk ratios (RRs) and 95% CIs were used to compare the proportion of decedents who were recently incarcerated in 2017 with those who were incarcerated in 2016, since individual-level MAT program enrollment data were unavailable. The number needed to treat was estimated from the risk difference of recent incarceration between the 2 periods.  $\chi^2$  Tests compared differences in decedent characteristics between 2016 and 2017. Statistical analysis was performed using SAS program, version 9.3 (SAS

releases from incarceration were similar over time; however, the provision of naloxone to inmates after release from incarceration declined, and the monthly receipt of MAT after release from incarceration increased (Table 2).

In the 2016 period, 26 of 179 individuals (14.5%) who died of an overdose were recently incarcerated compared with 9 of 157 individuals (5.7%) in the 2017 period, representing a 60.5% reduction in mortality (RR, 0.4; 95% CI, 18.4%-80.9%;  $P = .01$ ). The number needed to treat to prevent a death from overdose was 11 (95% CI, 7-43).

**Discussion** | We observed a large and clinically meaningful reduction in postincarceration deaths from overdose among inmates released from incarceration after implementation of a comprehensive MAT program in a statewide correctional facility—a reduction contributing to overall population-level declines in overdose deaths. Results are consistent with other studies of the provision of MAT during incarceration,<sup>4</sup> yet it is remarkable that the reduction in mortality occurred in the face of a devastating, illicit, fentanyl-driven overdose epidemic.<sup>5,6</sup> Alternative explanations for the observed reductions (eg, differences in population or the provision of naloxone) linked to recent incarceration are unsupported.

Limitations of this study include a small sample size, a lack of MAT data after inmate release, and possible misclassification of program exposure (eg, refusal of MAT, denial of opioid use disorder, and staggered MAT program implementation), which may have underestimated the association. Additional individual-level and longitudinal analyses are warranted.

Identification and treatment of opioid use disorder in criminal justice settings with a linkage to medication and supportive care after release from incarceration is a promis-

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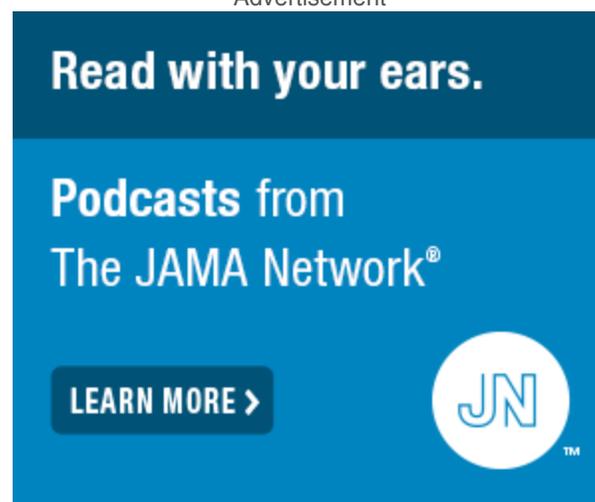
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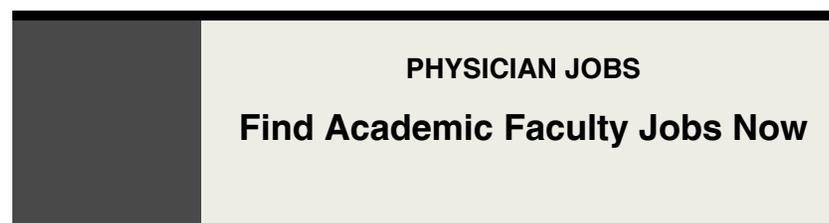
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