



Reducing Overdose Deaths: Strategies to Enhance Overdose Prevention During and After Substance Use Disorder Treatment

PURPOSE OF THIS BULLETIN

For the past two decades, opioid overdose has been a primary contributor to the increase in premature mortality in the United States, contributing to more than 1 million deaths.¹ The time after substance use disorder (SUD) treatment termination can confer increased risk of overdose death. Methadone and buprenorphine treatment for opioid use disorder (OUD) reduce overdose deaths by up to 50%.^{2,3} Our objective was to determine the risk of overdose death following SUD treatment termination among those with OUD, as few other studies have done so. This bulletin reports on the risk of overdose death among NYC residents who had OUD and who had NYC-based SUD treatment terminated between Jan. 1, 2016 – Jun. 30, 2019. We then detail the comprehensive actions that the NYS Office of Addiction Services and Supports (OASAS) is undertaking to reduce treatment terminations and treatment interruptions in order to reduce the high risk of overdose death.

KEY TAKEAWAYS

- Among 51,171 who had SUD treatment terminated, 342 had overdose death within 90 days.
- The 90-day period following SUD treatment termination should be considered a period of extremely high overdose death risk for all individuals.
- 14 days following SUD treatment termination is a period of exceptionally high overdose death risk; of all overdose deaths, 40.9% (*n*, 140) occurred ≤ 14 days.
- The overdose death rate 6.6 overdose deaths for every 1,000 treatment terminations.
- OASAS is undertaking system-wide evaluation to better understand the effectiveness of SUD treatment on a broad range of outcomes including on overdose death.
- OASAS is implementing a comprehensive approach to enhance timely treatment entry, promote retention, and ensure safe treatment transitions in order to provide effective low threshold SUD and OUD treatment services.
- Further, OASAS has undertaken a system-wide shift to integrate harm reduction principles and interventions across SUD treatment settings.

WHAT IS KNOWN ABOUT THE IMPACT OF OUD TREATMENT ON THE RISK OF OVERDOSE DEATH

The protective effect of OUD treatment varies over time and by treatment type.^{2,4-6} There is substantial variation in treatment received in SUD treatment settings, which creates challenges in understanding the effect of SUD treatment on overdose death rates.⁷ Further, the relationship between time in OUD treatment and the magnitude and durability of reductions in overdose death by treatment type are not well understood. However, available data clearly point to the importance of ongoing retention in methadone or buprenorphine treatment in sustaining its protective benefits.^{6,8}

At the individual-level, SUD treatment may not always follow a linear trajectory and interruptions in treatment are common. While the risk of overdose death is reduced during periods of methadone and buprenorphine treatment, few studies have examined overdose death risk among those experiencing SUD treatment termination or treatment interruption.^{9,10} Interruptions in SUD treatment occur for diverse reasons, and these interruptions contribute to high risk periods for those with SUD in which risk for overdose and other adverse outcomes are elevated.^{11,12} For example, historically, incarceration events have caused interrupted SUD treatment or delays in receiving timely SUD treatment, contributing to periods of very high risk of overdose death during transitions into and out of carceral settings for those in SUD treatment—particularly in the first 30 days following periods of incarceration.¹³

DEFINITIONS

Opioid use disorder (OUD) was defined as a patient reporting an opioid (e.g., heroin, fentanyl, opioid pill) as their primary, secondary, or tertiary substance of use at treatment admission.

Substance use disorder (SUD) treatment included five distinct treatment modalities categorized by SUD treatment types offering either treatment with a time-limited duration (medically supervised withdrawal and stabilization, inpatient, residential) or ambulatory treatment with an ongoing duration (outpatient, opioid treatment program).

Overdose deaths were defined as accidental deaths in which acute drug intoxication was cited as a contributory factor to the death in either part 1 or part 2 of death certificates issued by the NYC Office of Chief Medical Examiner (OCME). The following ICD-10 underlying cause-of-death codes indicated an overdose death: X40–X44. Overdose deaths did not include poisonings in which the manner of death was classified as intentional (suicide or homicide) or undetermined: X60–X64, X85, and Y10–Y14.

DATA SOURCES

NYS Office of Addiction Services and Supports (OASAS) is the single state agency overseeing the certification, regulation, funding, and/or oversight of all addiction services in NYS. OASAS patient-level data are continuously updated in real-time reflecting SUD treatment admissions and terminations. The observation period for the SUD treatment data was Jan. 1, 2016 - Jun. 30, 2019.

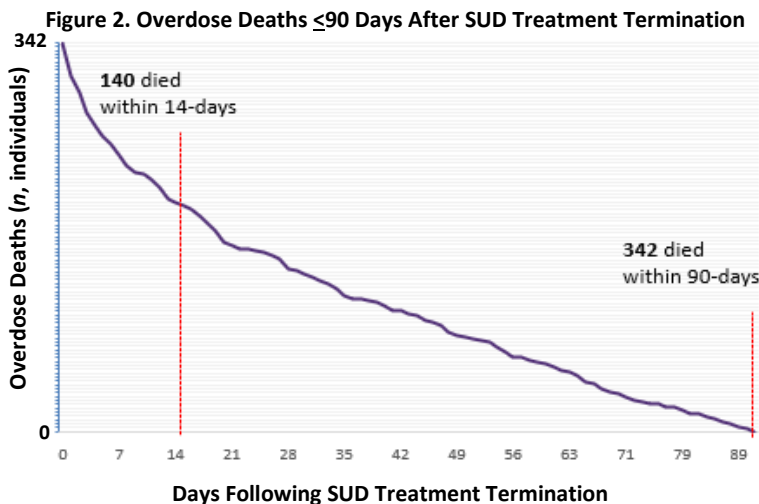
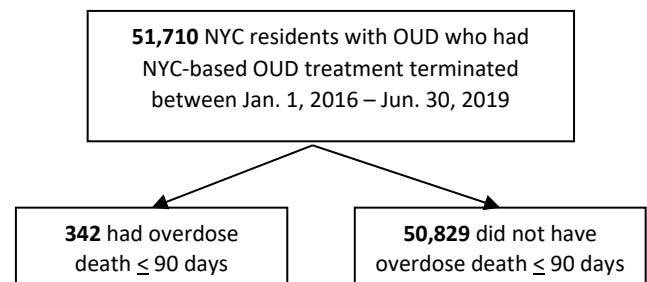
NYC Office of Chief Medical Examiner (OCME) is the agency responsible for investigating all deaths in NYC that were violent or unexpected (not due to a natural cause, e.g. accidental, sudden death in an otherwise healthy person). Deaths were assessed using a decedent's medical history, the circumstances and environment of the death, autopsy and laboratory findings. All overdose deaths in NYC are investigated and certified by the OCME. The observation period for the OCME overdose death data was Jan. 1, 2016 – Sept. 30, 2019.

HOW ANALYSES WERE CONDUCTED

We used a retrospective longitudinal cohort study design of NYC residents who had OUD and who were receiving NYC-based SUD treatment (between Jan. 1, 2016 - Jun. 30, 2019) to determine the overdose death rate in the 90-day period following SUD treatment termination events. We included all-cause treatment terminations, as reasons for termination vary across program types as well as among individuals receiving treatment. Further, given the chronic nature of SUD, all SUD treatment terminations constitute potential interruptions in needed SUD care.

We calculated the cumulative overdose death rate and the overdose death rate for the cohort. Person-time at risk was calculated as the sum of days contributed by unique patients in the cohort, using the date of SUD treatment termination as time zero, counting forward in time either through the outcome of interest (i.e., overdose death) or the end of the 90-day observation period.

Figure 1. Population Included in Analyses



WHAT WE FOUND

A total of 51,710 NYC residents with OUD had SUD treatment terminated between Jan. 1, 2016 and Jun. 30, 2019 in NYC. (Figure 1)

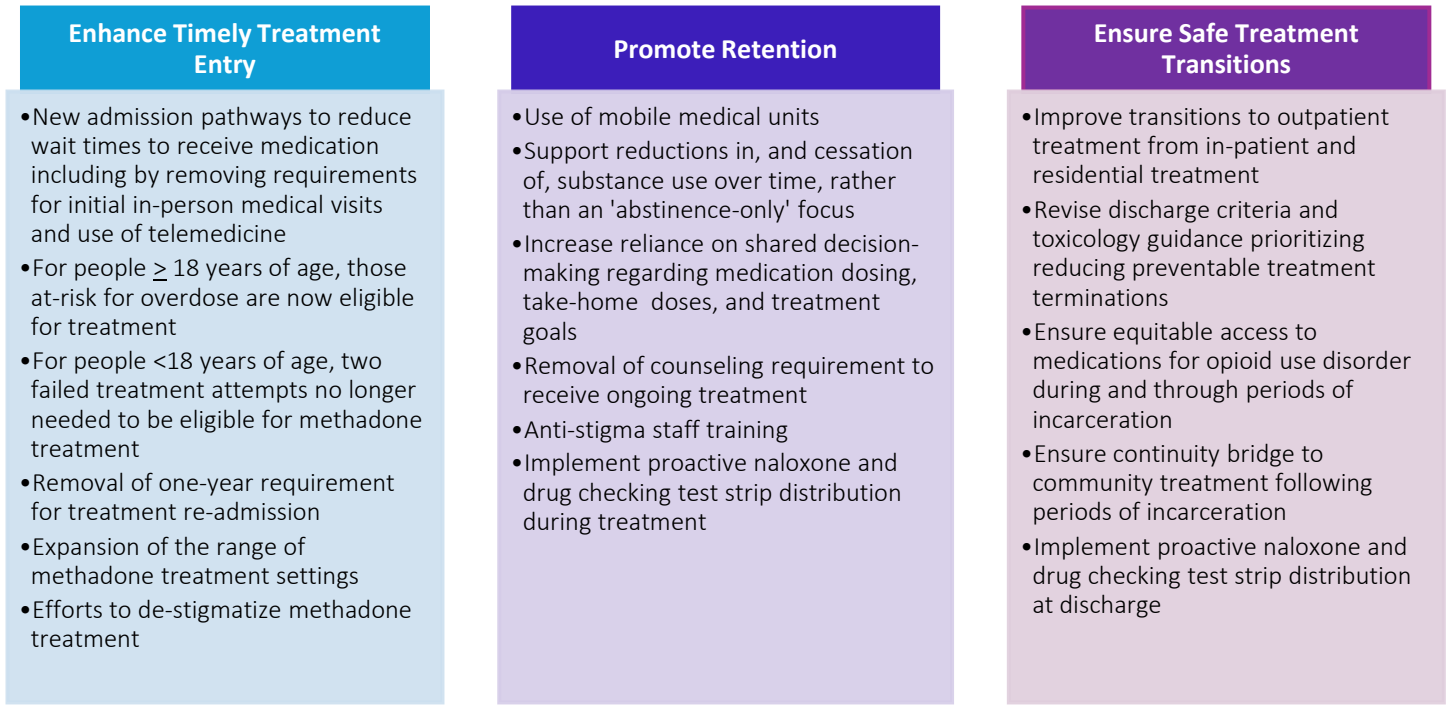
342 had an overdose death in the 90 days following SUD treatment termination (the median number of days to death was 20 days). 140 of the 342 overdose deaths (40.9%) occurred within 14 days of SUD treatment termination. (Figure 2)

We observed approximately 6.6 overdose deaths for every 1,000 treatment terminations. This translates to approximately 2,600 overdose deaths observed per 100,000 individuals who had SUD treatment terminated.

LIMITATIONS

The study population includes only NYC residents; therefore, findings may not be generalizable outside of NYC. The population does not include people receiving office-based buprenorphine treatment for OUD. Because data are from a population at-risk for overdose (i.e., have OUD), rates calculated reflect a different denominator than overdose death data from the general population.

Figure 3. Comprehensive Plan to Enhance Timely Treatment Entry, Promote Retention, and Ensure Safe Treatment Transitions



UNPRECEDENTED OPPORTUNITY TO SIGNIFICANTLY REDUCE OVERDOSE DEATHS BY IMPROVING TREATMENT EFFECTIVENESS

Recent revision to the federal opioid treatment regulations (“42 CFR Part 8”) represents an unprecedented opportunity to transform the way that methadone and buprenorphine are delivered in NYS and has the potential to significantly improve treatment outcomes, including reducing overdose death.^{14,15} Changes in federal policy allows NYS OASAS to implement important changes at the state-level to improve timely treatment entry, to promote treatment retention, and to facilitate safe treatment transitions. The newly revised regulations have the potential to significantly improve admission pathways by removing the prior in-person opioid treatment program medical visit required before medication could be received and allowing for the use of telehealth as part of the admission process. The revised regulations have the potential to improve treatment retention by allowing for more medication take-home doses, including within the first week of treatment under certain conditions, and allowing medication receipt and take-home medication with recommended, but no longer mandated, abstinence or participation in counseling. Further, revised regulations have the potential to significantly improve safe treatment transitions by facilitating transitions to outpatient treatment from in-patient or residential treatment settings and prioritizing reductions in preventable treatment terminations through revision of discharge (i.e., termination) and toxicology guidance.

METHADONE AND BUPRENORPHINE FOR OPIOID USE DISORDER TREATMENT ARE HIGHLY EFFECTIVE IN REDUCING DRUG OVERDOSE DEATH

Methadone and buprenorphine reduce drug overdose deaths by more than 50%.¹⁶ Prior data indicate that for those who initiate methadone for the treatment of OUD, overdose death rate is almost halved after the first 30 days of treatment.⁴ Further, those with OUD who receive methadone or buprenorphine have significantly lower rates of overdose deaths when compared with those who did not receive these medications for OUD treatment.⁸ Improving timely receipt of, and retention in, methadone and buprenorphine treatment, and ensuring safe treatment transitions, has the potential to yield broad population-level benefits including reducing overdose deaths in NYS.



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