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# Implementation and evaluation of interprofessional overdose review team recommendations following intentional or accidental overdose events

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## Abstract

Drug overdose death rates in the United States remain high despite efforts to mitigate this risk. Many communities and hospitals across the country have implemented overdose review teams, including local overdose fatality review teams or postoverdose intervention programs, to address the opioid crisis. The goal of most of these teams is to identify missed opportunities or patient-specific interventions to prevent future opioid overdose fatalities. Few overdose review teams review a combination of both fatal and nonfatal overdose events. The Veterans Affairs Tennessee Valley Healthcare System implemented a novel overdose review team (ORT) that collaboratively reviews all overdose incidents regardless of fatality, intent, or substance involved. This practice description characterizes reported facility overdose events and patient-specific risk-mitigation strategies recommended by the ORT, highlights the implementation rate and time to implementation of ORT recommendations, and discusses potential areas for process improvement. This practice highlights the potential impact of a pharmacist-led, interdisciplinary ORT following accidental or intentional overdose events involving any substance or medication. Key patient-specific interventions implemented following ORT recommendations included overdose prevention education and naloxone distribution, prescribing of medications for opioid use disorder and/or alcohol use disorder, reducing medication supply to limit lethal means access, and facilitation of mental health and/or substance use disorder specialty appointments. Further research to evaluate clinical outcomes related to specific ORT interventions should be considered.

**Keywords**: drug overdose, multidisciplinary, overdose review team, suicide prevention, interdisciplinary

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## Introduction

Drug overdose rates in the United States remain high despite efforts to mitigate risk. In 2021, there were 106 699 drug overdose deaths, which is a 14% increase compared with 2020. Of all drug overdose deaths in 2021, 92.1% were accidental and 7.7% had suicidal or undetermined intent.[1] Most existing literature focuses on interventions to lower the rate of future accidental opioid overdose related events.[2,3] Whereas intentional overdose deaths are significantly less common, data suggests there may be specific health care–related opportunities to minimize this risk.[4]

Overdose review teams (ORTs), including overdose fatality review teams and postoverdose intervention programs, aim to identify missed opportunities and potential interventions to prevent future overdose fatalities. Whereas overdose fatality

review teams take a public health approach to identify areas for improvement in community-specific policy, processes, and programs, postoverdose intervention programs aim to provide patient-specific interventions.[2,3,5–7] There is an increasing number of hospital- and community-based postoverdose intervention programs, but there is little evidence regarding related outcomes and large variability in program design.[2,3] These teams are essential considering that patients who have survived an overdose are at significantly higher risk for future fatal and nonfatal overdose.[2]

To our knowledge, this is the first description of an interdisciplinary, health care facility–based ORT that reviews all overdose incidents regardless of intent, fatality, or substance involved and provides patient-specific treatment recommendations to minimize the risk for subsequent overdose events.

## Practice Description

The ORT was established at the Veterans Affairs (VA) Tennessee Valley Healthcare System in 2019 to provide patient-specific recommendations following accidental and intentional overdose events. The ORT functions as a consultative chart review service and meets once weekly for 30 to 60 minutes to identify opportunities to mitigate risk for future overdose events and document recommendations in the electronic medical record (EMR). At the time of this review, ORT members included 2 suicide prevention case managers, an addiction psychiatrist, a pain management physician, and 4 clinical pharmacist practitioners with addiction, pain, and/or mental health (MH) expertise. The team is led by a Board-Certified Psychiatric Pharmacist, who provides oversight and reviews relevant dashboards to ensure risk reviews are completed, facilitates team discussion, and completes documentation of team recommendations.

The ORT lead is alerted to an overdose event when any facility provider enters a suicide behavior and overdose report (SBOR) or documents an overdose behavior within a comprehensive suicide risk evaluation in the EMR in line with national VA procedures.[8] SBOR notes are templated to document information including but not limited to the date of the event, who reported the event, suicidal intent, outcome of event (resulting in injury or fatality), and a brief description of the event. After interdisciplinary team review, an ORT note is placed in the EMR summarizing all team recommendations. The patient's assigned primary care, MH, and/or specialty care providers are alerted to recommendations via the EMR and are responsible for assessing recommended interventions and implementing as appropriate. The ORT risk review focuses on recommendations related to substance use disorders (SUDs), pain, and lethal means access with high-risk medications (ie, opioids, tricyclic antidepressants, lithium, antiarrhythmics).

## Practice Evaluation

A quality improvement review was completed to characterize facility overdose events and patient-specific risk-mitigation strategies recommended by the ORT, describe the implementation rate and time to implementation of ORT recommendations, and identify potential areas for process improvement. The review was determined exempt from the facility institutional review board and included all patients who had a documented ORT risk review note from August 19, 2020, through August 19, 2021, the second full year ORT services were established at this facility.

Characteristics of identified overdose events (N = 106) are summarized (Table 1). Patients were most often middle-aged, white, and male, and approximately 40% had documentation of a previous overdose event. The 2 most common substances involved were psychotropic medications and nonprescribed opioids with 33.9% (n = 36) of events involving multiple substances.

The ORT routinely recommended MH, SUD, and/or pain specialty outpatient follow-up based on patient-specific characteristics. Within 3 months of ORT review, 73.6% (n = 78) of patients had outpatient MH follow-up. Average time to MH follow-up was 11.2 days. Of the 54.7% (n = 58) of patients who had an identified SUD, 44.8% (n = 26) saw addiction treatment services within 3 months of ORT review. Other recommendations and implementation rates related to naloxone prescribing, medications for opioid use disorder (MOUD), and/or medications for alcohol use disorder (MAUD) and medication supply reduction are summarized (Table 2).

## Discussion

Findings of this review suggest the potential impact of a pharmacist-led, interdisciplinary ORT following accidental or intentional overdose events regardless of intent or involved substance or medication. Whereas this team primarily functions as a postoverdose intervention program to provide patient-specific interventions following a nonfatal overdose, a local overdose fatality review team approach is also used to ensure opportunities to improve facility-wide processes are implemented as needed.[3,6] Fatal overdoses were more often accidental than intentional, and the majority of fatal cases involved opioids. These findings emphasize the need for ongoing opioid overdose prevention and harm-reduction efforts. Consistent with previous literature, the 1 intentional overdose fatality involved a psychotropic medication, and repeat overdose events occurred within 3 months in 18% of patients reviewed.[4,9] One fatal overdose (accidental) occurred within 3 months following ORT review and involved a nonprescribed stimulant. It is possible this fatality may have resulted from direct effects

**TABLE 1: Overdose events: demographics and reporting**

| | N = 106 | |
|---|---|---|
| Race (n, %) | White | 65 (61.3) |
| | Black/African American | 23 (21.7) |
| | Unknown/declined to answer | 17 (16.0) |
| | American Indian/Alaskan Native | 1 (0.9) |
| Gender (n, %) | Male | 89 (83.9) |
| | Female | 17 (16.0) |
| Age, years (mean ± SD) | 45.3 ± 13.8 | |
| Previous overdose (n, %) | 43 (40.5) | |
| Discipline reporting overdose event (n, %) | Psychiatrist | 32 (30.2) |
| | Suicide prevention case manager/coordinator | 17 (16.0) |
| | Psychiatric nurse practitioner | 16 (15.1) |
| | Psychiatry resident | 14 (13.2) |
| | Social worker | 14 (13.2) |
| | Clinical psychologist | 8 (7.5) |
| | Clinical pharmacy practitioner | 5 (4.7) |
| Medications/substances involved in all overdose events (n, %) (N = 140)[a] | Psychotropic medication[b] | 30 (28.3) |
| | Nonprescribed opioid[c] | 30 (28.3) |
| | Prescription opioid | 7 (6.6) |
| | Nonprescribed stimulant | 10 (9.4) |
| | Prescription stimulant | 0 (0) |
| | Nonprescribed benzodiazepine | 7 (6.6) |
| | Prescription benzodiazepine | 4 (3.8) |
| | Other prescription medication | 17 (16.0) |
| | Over the counter medication/other | 14 (13.2) |
| | Involved alcohol | 13 (15.1) |
| | Unknown | 8 (7.5) |
| Medications/substances involved in fatal overdose events (n) (N = 6) | Nonprescribed opioid | 2 |
| | Nonprescribed opioid + nonprescribed stimulant | 1 |
| | Prescription opioid + alcohol | 1 |
| | Psychotropic medication + other prescription medication | 1 |
| | Unknown | 1 |

[a]The total number of medications/substances involved in overdose events (N = 140) exceeds the total number of overdose events (N = 106) as 33.9% (n = 36) of overdose events involved a combination of 2 or more listed medications/substance categories.
[b]Psychotropic medications included antidepressants, antianxiety medications, mood stabilizers, and antipsychotics.
[c]Nonprescribed opioids included heroin, fentanyl, and nonprescription use of prescription opioids.

of nonprescribed stimulants or fentanyl, which is now commonly identified in cocaine and methamphetamine supplies.[10] This supports increased availability of harm-reduction services for patients at risk for substance use or nonprescribed medication use such as evidence-based treatments for stimulant use disorder, fentanyl test strips, and associated public education efforts.[11]

In nonfatal overdose cases, the ORT provided patient-specific recommendations to reduce risks of future overdoses and optimize patient care. Whereas the recommendation implementation rate (28.8% to 54.3%) by the patient's assigned provider was lower than desired at times, clinically significant interventions associated with decreased overdose risk likely occurred because of team efforts. The ORT supported

**TABLE 2: Overdose review team recommendations and implementation rate**

| | Recommended by overdose review team (N = 106), n (%) | Recommendation implemented by treating provider,[b] n (%) | Time from recommendation to implementation, days (mean) |
|---|---|---|---|
| Naloxone prescribing/overdose prevention education | 35 (33) | 19 (54.3) | 5.4 |
| Medications for AUD or OUD[a] | 32 (30.1) | 12 (37.5) | 11.8 |
| Reduction in medication supply (from 45 to 90 to 15 to 30 days) | 66 (62.3) | 19 (28.8) | — |

AUD = alcohol use disorder; OUD = opioid use disorder.
Multiple recommendations may have been made for a single overdose event.
[a]Included recommendation for any FDA-approved medication for alcohol use disorder (acamprosate, disulfiram, naltrexone oral route/extended release) or opioid use disorder (buprenorphine, methadone, naltrexone extended release).
[b]Implemented by treating provider within 3 months of overdose review team review.

naloxone distribution with more than half of patients deemed at possible risk for opioid overdose receiving naloxone within 5.4 days (mean) from recommendation. Considering that more than one-third of overdose events involved an opioid, efforts to further increase naloxone distribution at the study facility is crucial for prevention of future events.[12] Opioids and alcohol were involved in 34.9% and 15.1% of cases reviewed, respectively, and 37.5% of these patients received a prescription for MAUD and/or MOUD within 3 months of ORT recommendation. This review highlights a facility-specific need to continue improving access to MOUD given previous evidence demonstrating a reduced risk of overdose death when MOUD is initiated following an opioid overdose.[13] Increased facility prescribing of MAUD could also aid in reduction of overdoses that involve alcohol given the benefit for decreasing any alcohol and/or heavy alcohol use.[14] This is particularly important given that alcohol use disorder is a potent risk factor for suicide.[15] Recommendations to reduce medication day supply following intentional overdose occurred for 28.8% of applicable patients. Previous literature indicates medications used in suicidal overdoses were often recently dispensed, suggesting lethal means counseling to assess current medication access and interventions, such as limiting quantities dispensed, may reduce risks.[16]

Average time to outpatient MH follow-up following ORT review was 11.2 days. Given the risk of repeated overdoses, timely implementation of risk-mitigation efforts and care coordination remains a priority for improvement.[9] Of the 54.7% (n = 58) of patients who had an identified SUD, 44.8% (n = 26) saw an addiction specialist within 3 months of ORT review. A 2020 study by Kilaru and colleagues found that 16.6% of people obtained follow-up within 90 days of nonfatal opioid overdoses.[17] Notably, addiction specialty follow-up rates were much greater (44.8% versus 16.6%) in our patient sample. These findings suggest that ORT recommendations potentially had a positive impact on care coordination and facilitating outpatient MH and addiction specialty appointments.

Changes to ORT procedures were implemented following this review to improve recommendation implementation rates and time to implementation. Direct patient outreach efforts by an ORT team member via telephone were implemented to facilitate crucial interventions, such as naloxone distribution, MOUD initiation, and key treatment referrals in higher risk patients (ie, post opioid overdose) or those without assigned treatment providers. Direct communication with the patient's treating provider to facilitate key recommendations was implemented to avoid sole reliance on EMR notifications.

## Conclusions

This is the first description of an interdisciplinary, health care facility–based ORT that reviews all overdose incidents regardless of intent, fatality, or substance involved. Key patient-specific interventions implemented following ORT recommendation included overdose prevention education and naloxone distribution, prescribing of MOUD and/or MAUD, reducing medication supply to limit lethal means access, and facilitation of MH and/or SUD specialty appointments. The psychiatric pharmacist plays a significant role in formulating and facilitating implementation of team recommendations. Results support continuation and potential expansion of the team to support the goal of preventing repeat overdose events and improving patient-centered care. Further research to evaluate clinical outcomes, such as repeat overdose rates, related to specific ORT interventions should be considered to help guide the focus of future ORT efforts.

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