**Evaluation of a Pilot Medication Safety Campaign and Comparison to Distribution of Unintentional Overdose Deaths in Montgomery County, Ohio**

Parvaneh K. Nouri MPH¹, Dawn L. Ebron MS, MPH, CPH², Sabrina Neeley PhD, MPH¹

1. Wright State University, Dept. of Population & Public Health Sciences; 2. Public Health – Dayton & Montgomery County

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**Background**

- In 2016, 27.1 million Americans identified as illicit drug users or regularly misusing prescription medications.¹ That same year marked the highest opioid-related death toll in the United States to date.²
- 245 million opioid prescriptions were filled in 2014, making them the most frequently prescribed medication in the United States for that year.³ In 2016, 1 of 5 Ohioans who died from an unintentional overdose had a prescription for opioids within 30 days leading up to their deaths.⁴
- The greatest risk factor for illicit opioid use is previous misuse of prescription opioid medications.⁵
- CDC endorses interventions and campaigns that aim to reduce prescription opioid misuse.
- The purpose of the study was:
  1. To evaluate a pilot medication safety campaign with focus on medication storage and disposal; and
  2. To identify areas of improvement for this campaign, as they may be informed by results of a secondary analysis of de-identified overdose related data that was provided by the Montgomery County (MC) Coroner’s Office.

**Methods**

This project consisted of two parts:

1. A pilot medication safety campaign – over 5,000 Verde Technologies Dettera® System medication disposal pouches, utilizing MAT12® Molecular Absorption Technology, were distributed to community members of MC between Spring 2017 and January 2018. Prepaid postage surveys were attached to each pouch. Anonymous survey data was subjected to descriptive analyses to determine the distribution of pouches as well as attitudes towards the pouches and ease of use.

2. A secondary analysis of de-identified unintentional overdose-related death data was included.

Distribution of the pouches was compared to the distribution of unintentional overdose deaths. This project was exempt from Wright State University Institutional Review Board (IRB) approval on the basis of exemption criteria 45 CFR 46.101(b)(2) and (b)(4).

**Results**

- One-hundred-fifty-six (156) surveys were received, conferring a 2.8% response rate.
- The highest concentration of bags, by survey, are being used in the 45424 zip code corresponding with Huber Heights, OH (Figure 1).

**Survey Data**

- More than two-thirds of respondents reported the pouch prompted them to clean out their medicine cabinets (68.7%).
- An overwhelming majority reported the pouches were easy to use (98.5%).
- Out of 153 self-reports, nearly one-third needing to dispose of narcotics such as opioids (31.6%).
- Interestingly, more than half of respondents that filled out the optional comments section expressed gratitude and positive regard for the pouches.
- Only 24 respondents disclosed previous methods of medication disposal. Two-thirds preferred at-home methods of disposal.

**Coroner Data**

- The largest clustering of unintentional overdose-related deaths in MC occurred in the Dayton metropolitan area (Table 1).
- Female accounted for 31.6% of these deaths, whereas males accounted for 68.4%.
- The largest age category represented in female deaths were their 30s (29.4%), and for males it was their 40s (29.9%).
- The largest proportion of deaths occurred in Whites (83.6%).
- Gender-based differences were found for the presence of benzodiazepines, heroin, and alcohol (Table 2).
- Over 60% of the deceased had illicit fentanyl in their system (62.4%), less than one-quarter had a prescription opioid, and less than 10% had heroin in their system (8.2%). Table 3 provides a full breakdown.

**Discussion and Conclusion**

Medication Safety and Unintentional Overdose

These findings are consistent with recent data from the U.S. Drug Enforcement Administration’s (DEA) Take Back Initiative implemented in Texas which found that survey respondents were not likely to drive more than 6 miles to dispose of their medications.⁶ Additionally, most regard the bags positively and find them easy to use.

While most overdose-related deaths were found to be positive for fentanyl, the presence of prescriptive and non-prescriptive central nervous system (CNS) modulators (e.g. stimulants and depressants) was the most frequent finding. This may highlight an area for improvement in public health education on the dangers of multiple-drug interaction.

In examining gender-based differences in substances present at the autopsy of unintentional overdose deaths, women were significantly more likely to have a benzodiazepine in their system, whereas men were more likely to have consumed alcohol prior to their death. These differences highlight the need for an opportunity to review and engage medication safety campaigns and treatment programs to reflect these important differences. At the very least, these data identify potential avenues to educate the community on the lethal dangers associated with the interaction of various CNS modulators.

**References**