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Characterization of Nationally Reported Pediatric Deaths Involving Fentanyl Ingestions in Missouri

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BACKGROUND

Nationally, there has been a dramatic rise in deaths associated with synthetic opioid use, a trend that has not spared the pediatric population[1]. Of the synthetic opioids, fentanyl and fentanyl-analogs are most often implicated in fatalities.

OBJECTIVES

Characterize the trend of pediatric fentanyl fatalities in the state of Missouri, as well as determine risk factors that may help providers identify children at highest risk and guide prevention programming.

METHODS

Retrospective cohort study of deidentified data from the National Center for Fatality Review and Prevention (NCFRP).

Selection criteria:

- Children < 18 years of age
- Year of death 2018 – 2023*
- Child is a resident of Missouri
- Poisoning death indicated as due to fentanyl/fentanyl-analogs

IRB determination was not human subject research. Data included demographics, history of substance abuse among caregivers, caregiver at time of fatal ingestion, location of ingestion, co-ingestions, manner of death, resuscitation measures, and previous reports to child protective services (CPS). Descriptive statistics were used.

*No pediatric fentanyl fatalities were documented by NCFRP in the state of Missouri prior to 2018

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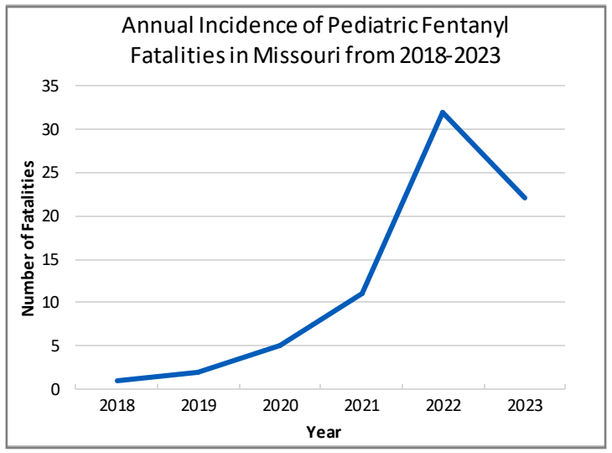
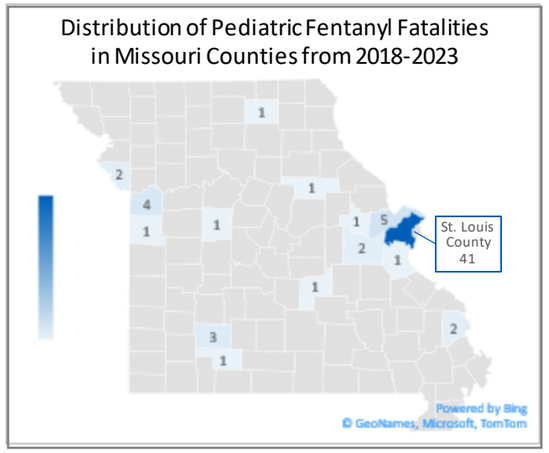
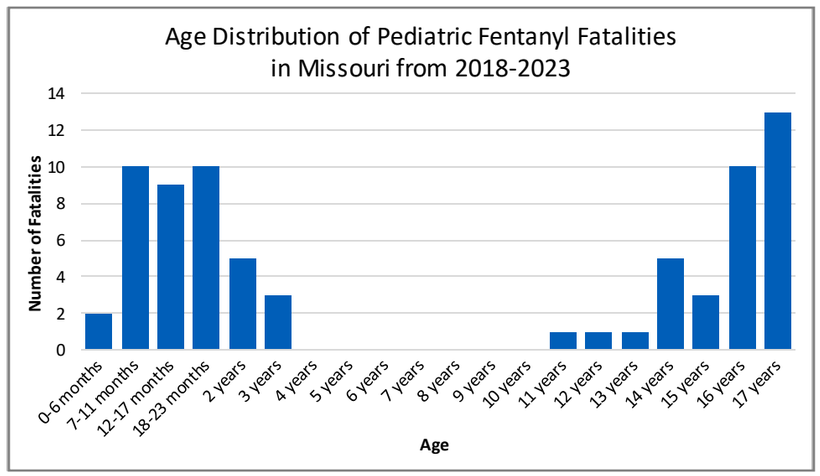
RESULTS







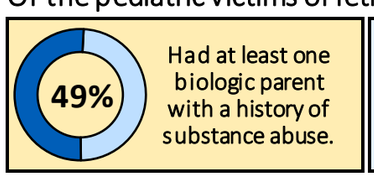
50% of the teen victims (>11 years old) had a confirmed co-ingestion, the most common substances being:

1. **Non-fentanyl opioids**
2. **Alcohol**
3. **Marijuana**

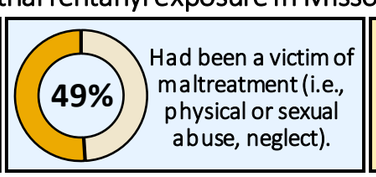
28% of the infant/toddler victims (<4 years old) had a confirmed co-ingestion, the most common substances being:

1. **Methamphetamines**
2. **Cocaine**
3. **Non-fentanyl opioids**

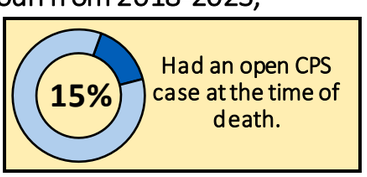
Of the pediatric victims of lethal fentanyl exposure in Missouri from 2018-2023,



Had at least one biologic parent with a history of substance abuse.

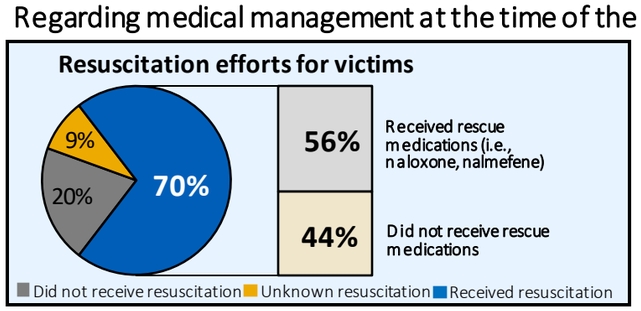


Had been a victim of maltreatment (i.e., physical or sexual abuse, neglect).



Had an open CPS case at the time of death.

Regarding medical management at the time of the lethal fentanyl exposure,



When performing toxicology studies, there were at least

12 cases

in which initial testing did not detect fentanyl or fentanyl-analogs, however, follow up confirmatory testing detected their presence.

DISCUSSION

- There has been a significant increase in pediatric fatalities due to fentanyl exposure in Missouri from the years 2018-2023
- Pediatric fentanyl fatalities follow a bimodal age distribution with peaks in the toddler and teenage groups
- Unique risk factors are suspected in each age group: toddlers displaying oral-sensory-seeking behaviors, teens having risk-taking behaviors
- Significant substance abuse among caregivers suggests easy accessibility or, in the teen group, behavioral influence
- Healthcare encounters present opportunities to provide caregivers information about risks of accidental ingestions and offer resources such as lockboxes and Narcan (naloxone) for use in the home
- Accessibility of rescue medications and administration during resuscitation efforts are key areas for improvement

CONCLUSION

There is a desperate need for identification of children at high risk of falling victim to fentanyl's deadly effects.

Future research may help to clarify identifiable risk factors and assess efficacy of efforts to guide implementation of targeted prevention programming.

REFERENCES

1. Centers for Disease Control and Prevention. Fentanyl. June 1, 2022. https://www.cdc.gov/opioids/basics/fentanyl.html
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3. Walter K. Fentanyl overdose. *JAMA*. 2023;329(2):184. doi:10.1001/jama.2022.22462