State of Alaska Epidemiology Bulletin

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Methamphetamine-Involved Overdose Deaths — Alaska, 2017–2023

Background

Methamphetamine (METH) is a powerful stimulant with neurotoxic, arrhythmic, and hyperthymic effects, that may disrupt multiple organs.[1] METH use can exacerbate chronic conditions such as heart disease and asthma, increasing the risk of fatal overdose.[2] Using METH in combination with alcohol, benzodiazepines, cocaine, fentanyl, or other opioids can lead to more severe health effects. This *Bulletin* examines unintentional and undetermined intent drug overdose deaths involving METH as a contributing cause and summarizes associated polysubstance use patterns.

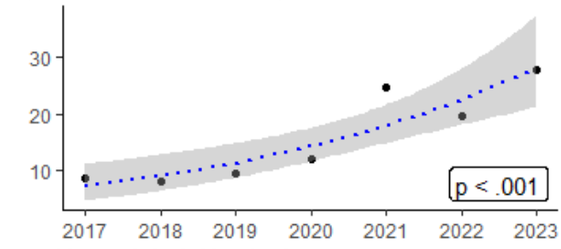
Methods

Fatal drug overdoses of unintentional or undetermined intent from 2017 to 2023 were identified using the State Unintentional Drug Overdose Reporting System (SUDORS). METH-involved overdoses were defined as cases where methamphetamine was listed as a contributing cause of death on the death certificate.[3] Polysubstance use was identified from toxicology findings recorded in SUDORS. Rates were calculated using population estimates from the Alaska Department of Labor. Annual trends were evaluated with Poisson regression.

Results

From 2017 to 2023, 816 unintentional or undetermined intent drug overdose deaths involving METH were identified. The METH-involved overdose death rate significantly increased by an average of 25% per year during the study period (risk ratio = 1.25; 95% CI: 1.21–1.30) (Figure 1).

Figure 1: Rate of METH-Involved Drug Overdoses per 100,000 Persons — Alaska, 2017–2023



**Dotted line and shaded band indicate Poisson regression estimates.*

Anchorage had the highest METH-involved overdose death rate (22 deaths per 100,000 Alaskans), followed by the Interior public health region (13 deaths per 100,000 Alaskans). Most METH-involved overdose deaths included at least one other substance (81%, 660), excluding amphetamine and marijuana. Among these polysubstance deaths, opioids were the most prevalent drug class, present in 88% (580) of cases, with fentanyl as the most common opioid (Table). METH was listed as a contributing cause in 56% of all unintentional and undetermined intent drug overdose deaths (816 / 1,460), with little annual variation (risk ratio = 1.03; 95% CI: 0.99–1.07) (Figure 2).

Figure 2: Proportion of All Drug Overdoses that Involved Methamphetamine — Alaska, 2017–2023

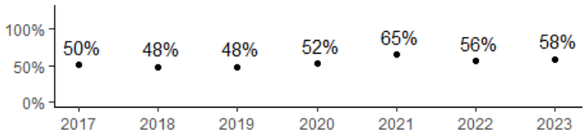


Table: Substances Involved in Polysubstance* METH-Involved Overdose Deaths (n=660) — Alaska, 2017–2023

Substance**	Count	Percent
Opiates	580	88%
Fentanyl	370	56%
Alcohol	159	24%
Benzodiazepines	69	10%
Cocaine	59	9%
Antidepressants	25	4%
Anticonvulsants	10	2%
Barbiturates	<6	<1%
Antipsychotics	<6	<1%
Muscle relaxants	<6	<1%

**Not including marijuana or amphetamine*
***Substance categories are not mutually exclusive*

Discussion

From 2017 to 2023, Alaska experienced a 25% annual increase in METH-involved overdose deaths, paralleling a broader rise in Alaska's overall overdose mortality rates.[4] During this period, METH was involved in roughly half of all unintentional and undetermined overdose deaths annually, suggesting METH use has been a consistent and persistent risk factor over time. Fatalities were typically driven by acute opioid toxicity (opioids were present in 88% of polysubstance deaths), compounded by the long-term health effects of METH use. These findings underscore the complexity and potential lethality of polysubstance use.

There were two main limitations to this evaluation: a) METH and amphetamine could not be differentiated in toxicology results, and b) marijuana was excluded due to its widespread use and low risk of fatal overdose.

Recommendations

- First responders should be aware that patients treated with naloxone for opioid overdose may have also used methamphetamine and can remain agitated, intoxicated, or at continued risk of adverse effects, such as cardiovascular events, respiratory arrest, or psychiatric decompensation after opioid reversal and should be closely monitored.
- When treating patients for non-fatal overdoses, including opioid overdoses, health care providers should assess for concurrent methamphetamine use and develop treatment plans that address polysubstance use.

References

1. Abbruscato TJ et al. DARK Classics in Chemical Neuroscience: Methamphetamine. *ACS Chem Neurosci*. 2018;9(10):2373-2378.
2. SOE *Recommendations and Reports* . "Health Impacts of Methamphetamine Use in Alaska. State of Alaska." Volume 19, No. 4. Nov. 7, 2017.
3. CDC. About the State Unintentional Drug Overdose Reporting System (SUDORS). Overdose Prevention. Updated Feb. 13, 2025.
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5. SOE *Bulletin*. "Nonfatal Opioid Overdoses — Alaska, 2019–2024." Mar. 3, 2025.

(Contributed by Riley Fitting, MPH Section of Chronic Disease Prevention and Health Promotion)