

Emerging Drug Trends Symposium

Fatal and Nonfatal Drug Overdose Trends in Pennsylvania

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Pennsylvania
Department of Health

Nonfatal Surveillance Data

Nonfatal Overdose Surveillance via Syndromic Surveillance

- EpiCenter, syndromic surveillance system hosted by Health Monitoring Systems (HMS)
 - ▣ Direct connections to 171/174 (98%) emergency departments in the state
- Data points collected include, but are not limited to:
 - ▣ Facility Identification and Location
 - ▣ Date and Time of the Visit
 - ▣ Patient Age, Gender, Race, Ethnicity, ZIP Code of Residence
 - ▣ Chief Complaint
 - ▣ Admit/Encounter Reason
 - ▣ Diagnosis Codes
 - ▣ Discharge Disposition
 - ▣ Medical Notes



Suspected Overdose-Related Classifiers

- **Any Drug Overdose**
 - Suspected overdose of any drug, including over-the-counter, prescription and illicit drugs, may include alcohol
- **Any Opioid Overdose**
 - Suspected overdose of any illicit or prescription opioids
- **Heroin Overdose**
 - Suspected overdose on heroin, may include fentanyl
- **Fentanyl Overdose**
 - Suspected overdose of any illicit or prescription fentanyl or fentanyl analogs
- **Stimulant Overdose**
 - Suspected overdose of any illicit or prescription stimulants
- **Cocaine Overdose**
 - Suspected overdose of cocaine
- **Methamphetamine Overdose**
 - Suspected overdose of any illicit or prescription methamphetamines/amphetamines
- **Benzodiazepine Overdose**
 - Suspected overdose of any illicit or prescription benzodiazepines

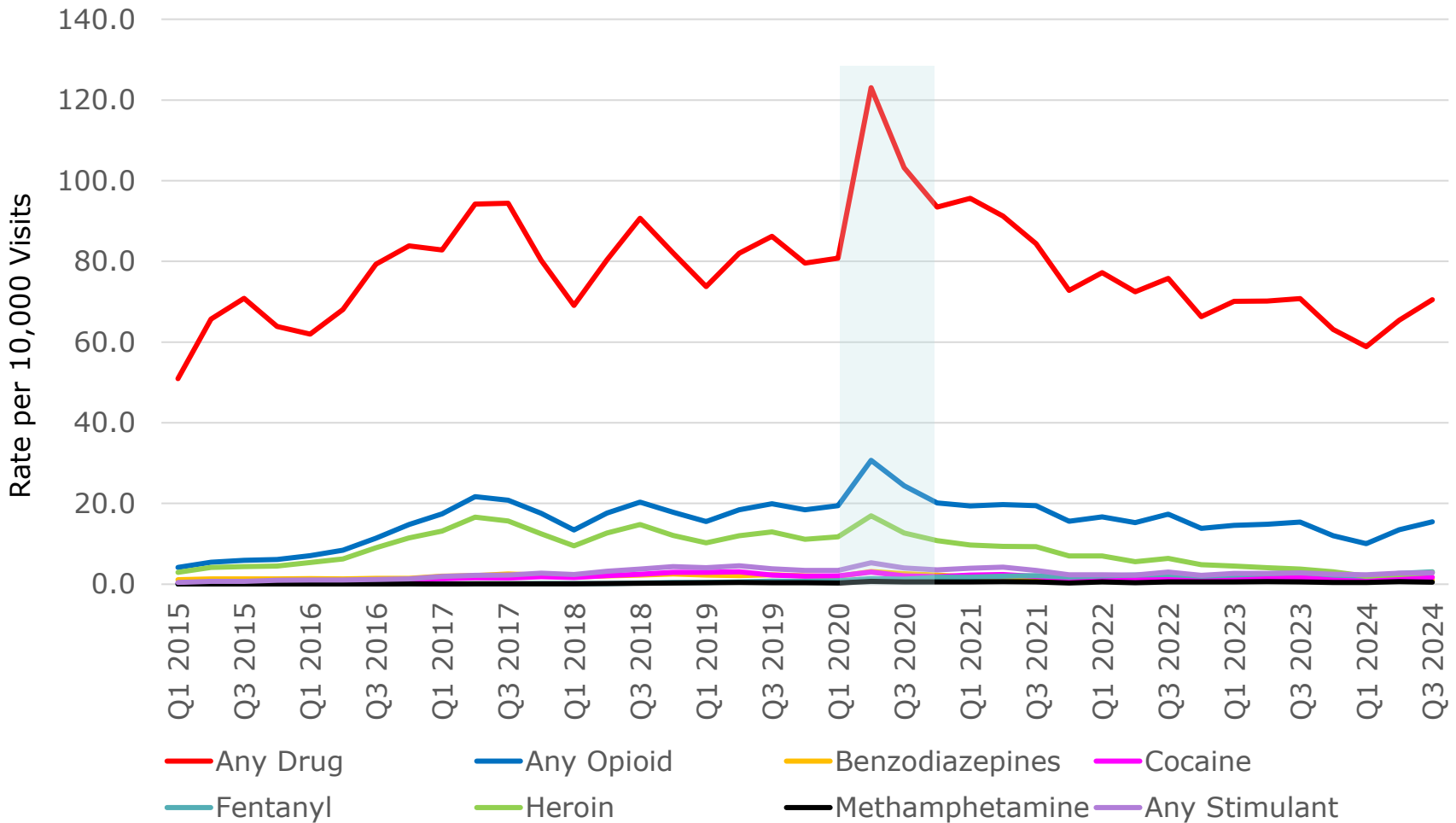


Limitations

- Inclusion/exclusion based on keywords/natural language processing and ICD-9/ICD-10 codes
 - Non-specific chief complaint
 - ICD code and medical note field submission optional
- Limited toxicology testing conducted in ED setting
 - Drug-specific visits likely underestimated
- No Incident Location information
- Only captures individuals who present to an emergency department
 - >50% of overdose deaths occur in the decedent's residence
 - In 2022, ~25% of overdose deaths occurred in an "Other" location
 - Past analyses showed about half of these were a friend or family member's residence
- Individual incidents not investigated by public health staff – overdoses are not a reportable condition in Pennsylvania

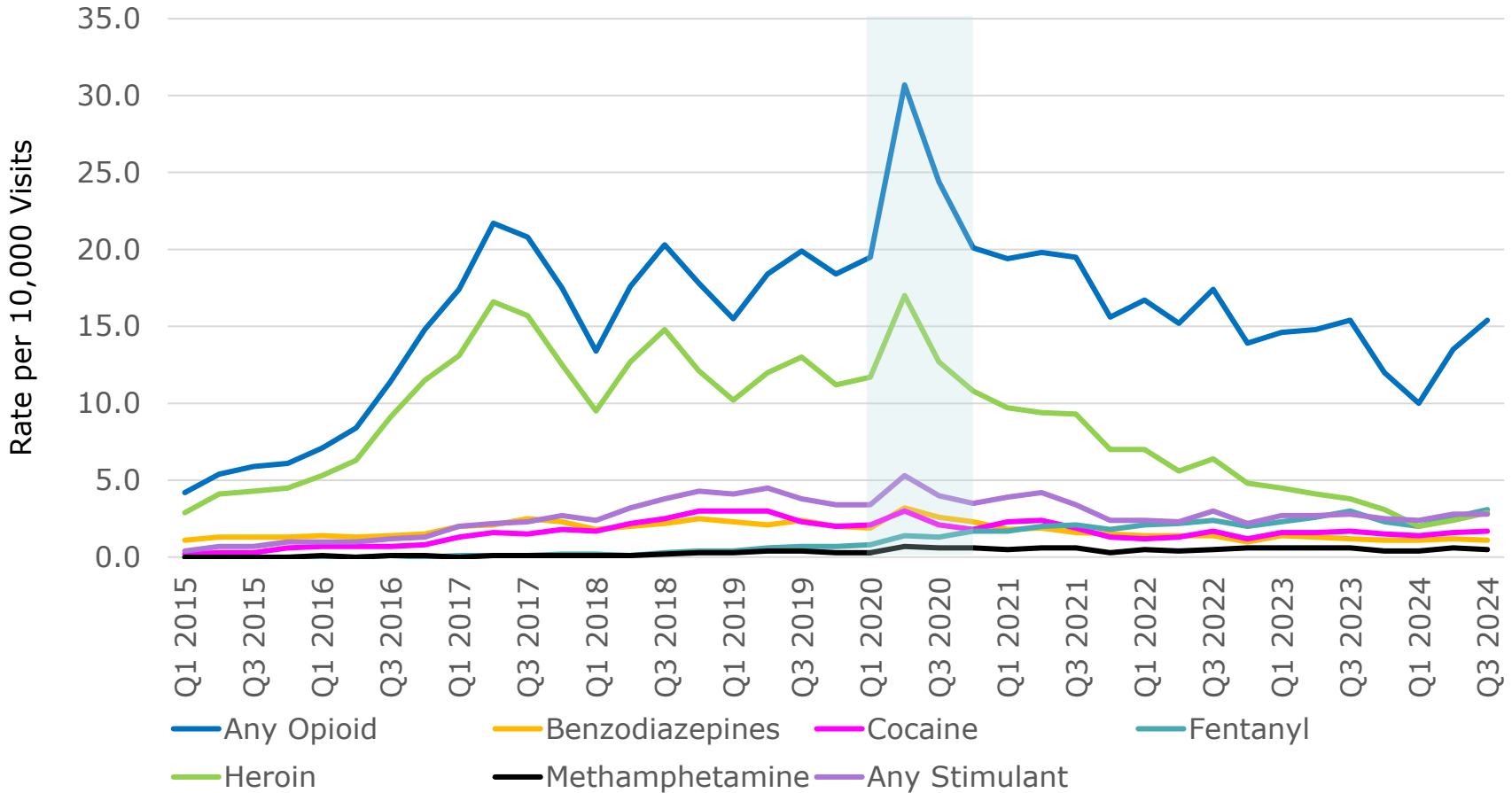


Rate of Suspected Drug Overdose-Related Emergency Department Visits per 10,000 Visits, by Quarter, 2015-2024



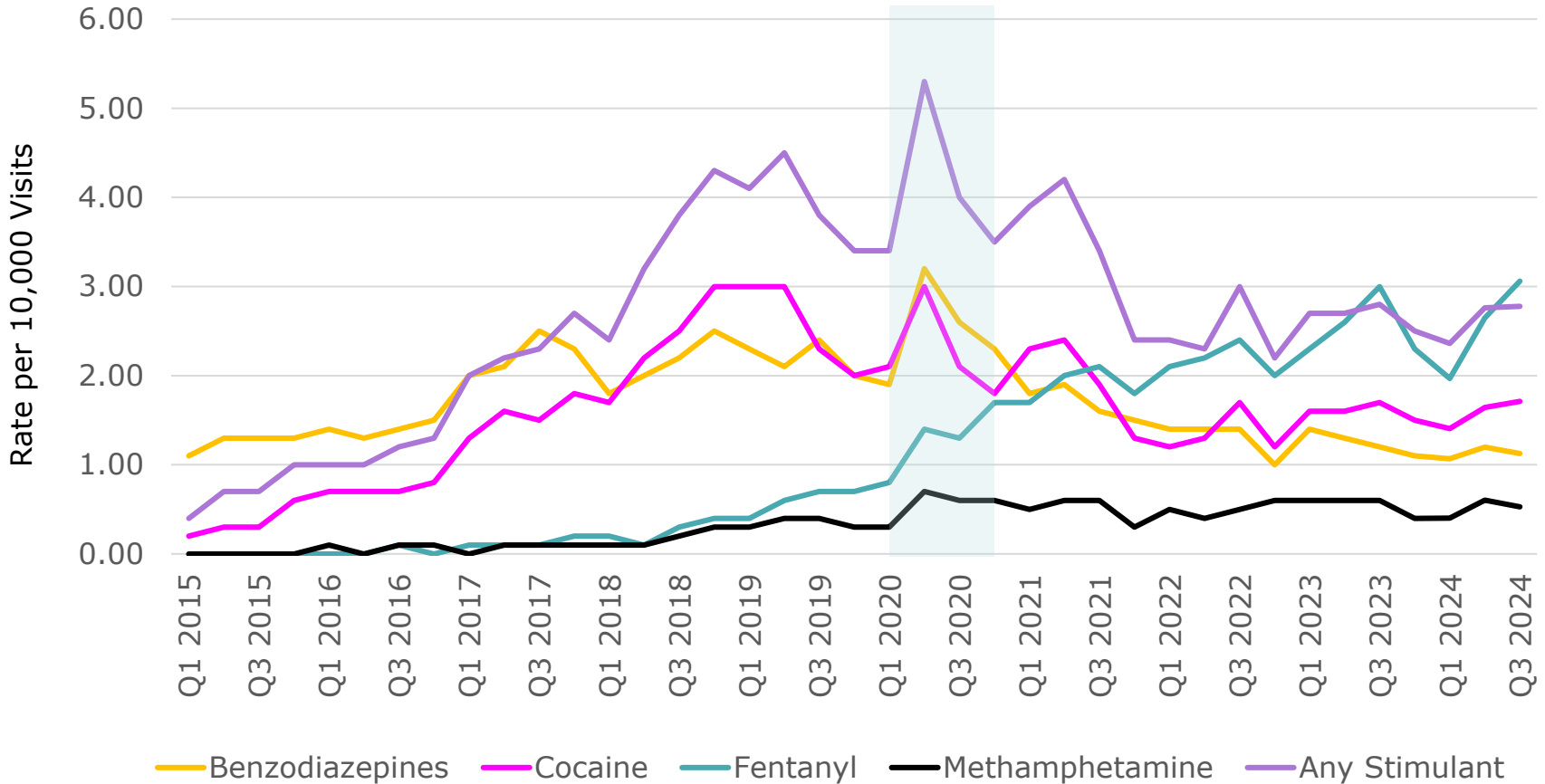
- Shaded area represents period of decreased All Cause emergency department visits during COVID-19 pandemic response. Rates per 10,000 Visits are difficult to interpret during this time.

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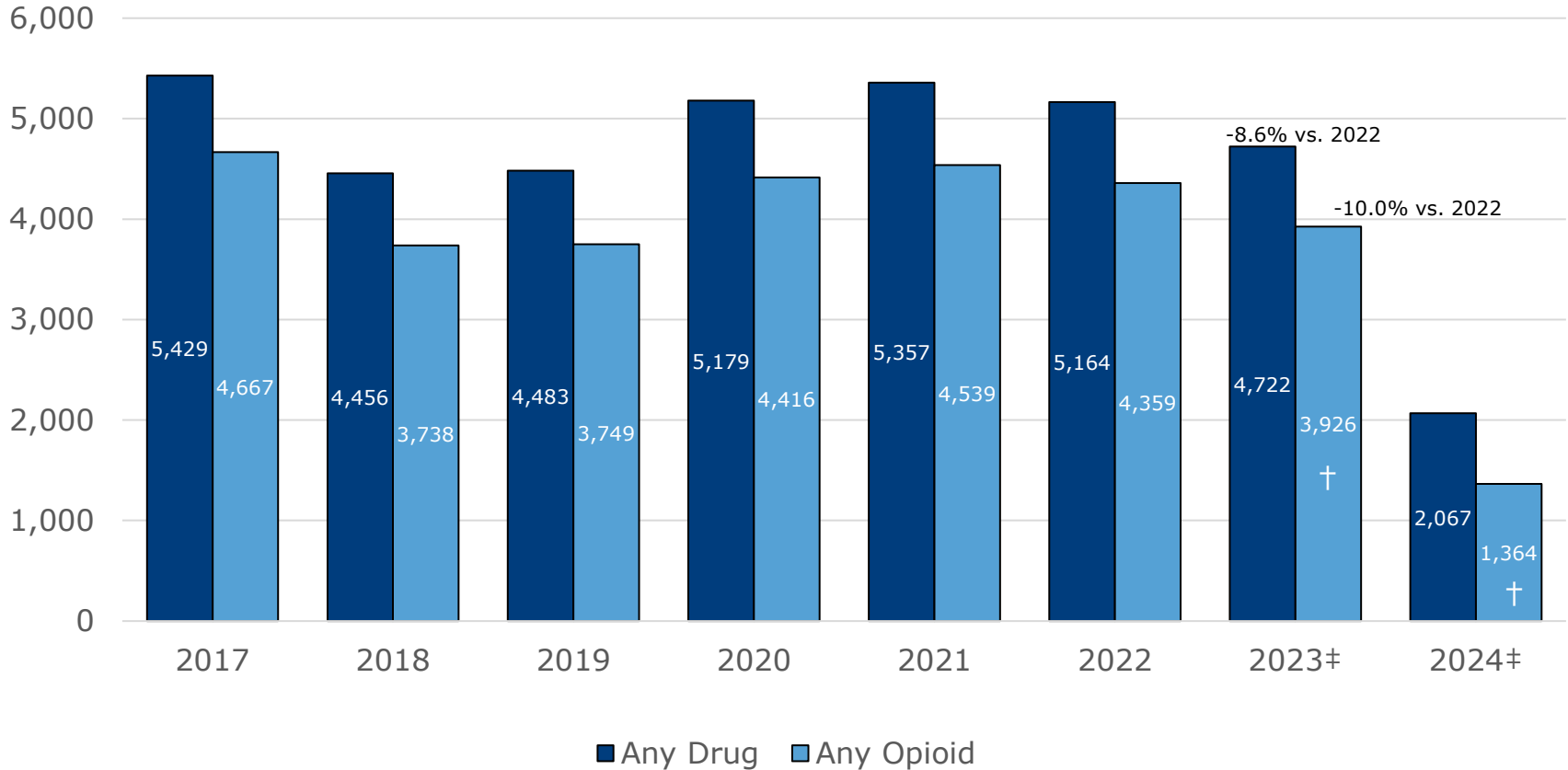


- Shaded area represents period of decreased All Cause emergency department visits during COVID-19 pandemic response. Rates per 10,000 Visits are difficult to interpret during this time.

Drug-specific rates are likely underestimated due to non-specific chief complaints and lack of comprehensive toxicology testing in the ED setting.

Fatal Surveillance Data

Estimated Unintentional* Drug Overdose Deaths, 2017 – 2024†



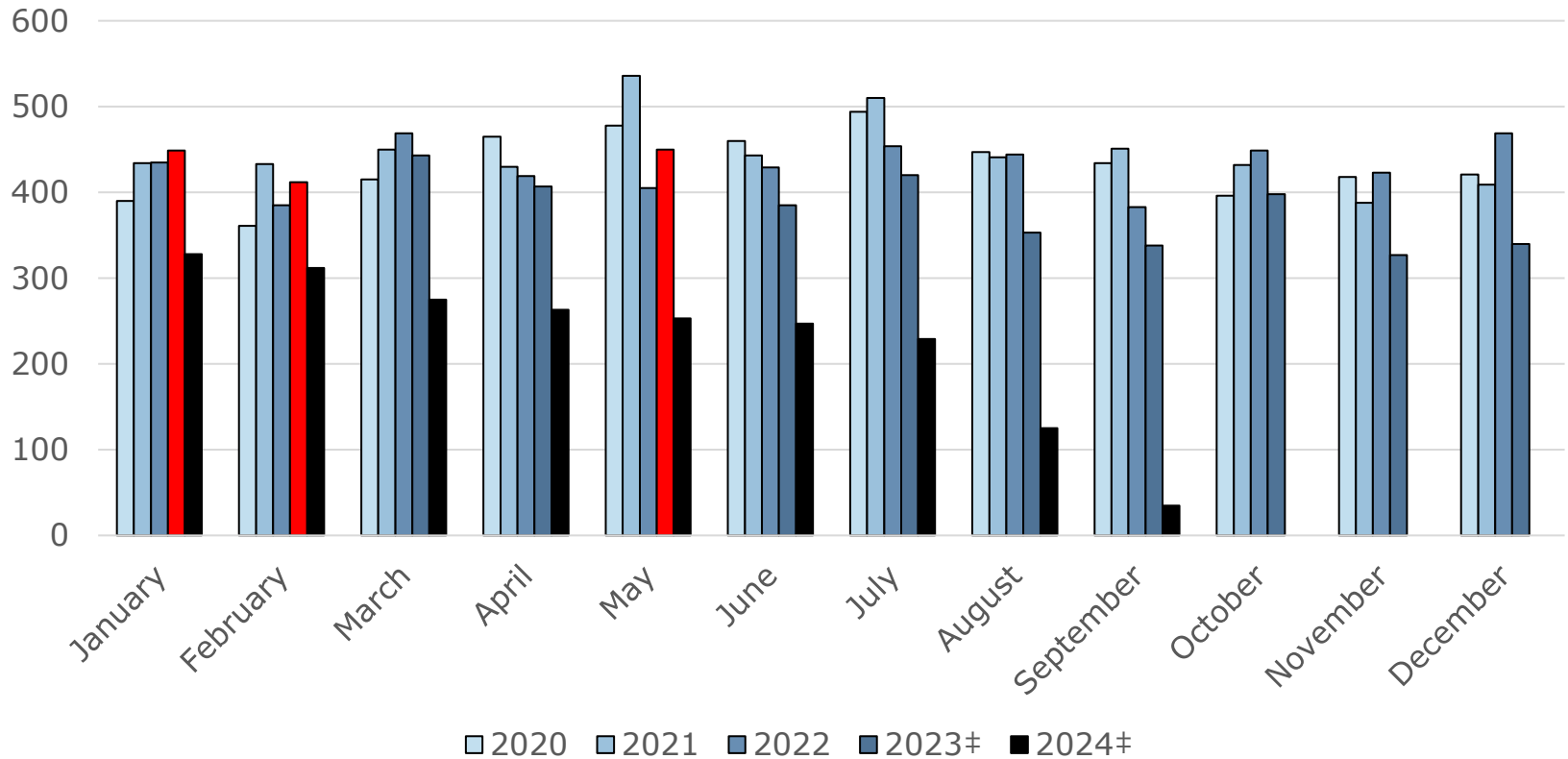
†2023/2024 death data is preliminary, based on death record data as of October 2024. Please note that death records for overdose deaths are often delayed by 3-6 months and counts may change.

* Unintentional overdoses include those where the manner of death is Accidental or Undetermined. Counts do not include suicides or homicides where someone intended to harm another person by poisoning.

†As of October 2024, ~2% of 2023 and ~14% of 2024 overdose deaths are missing drug specificity. Previous years are missing ≤5%.



Pennsylvania Estimated Any Drug† Overdose Deaths By Month, 2020-2024‡



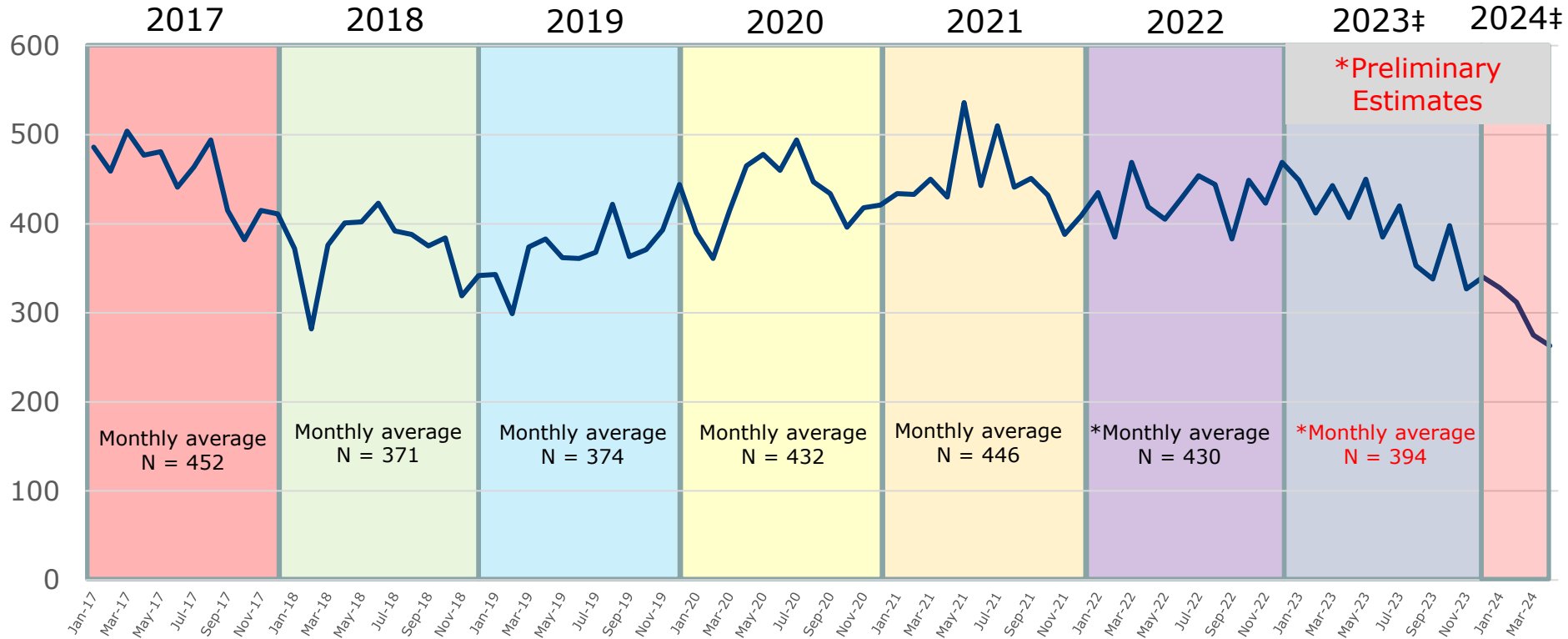
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Months highlighted in red indicate months where the count of overdose deaths are higher than the corresponding month of the previous year.



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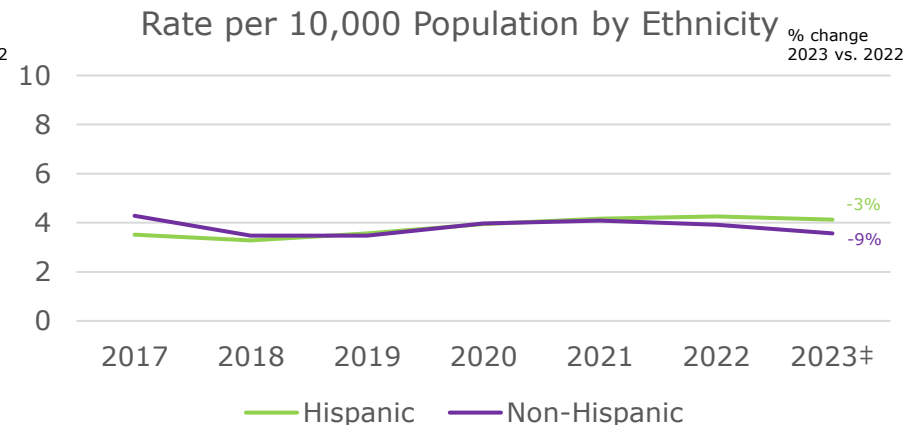
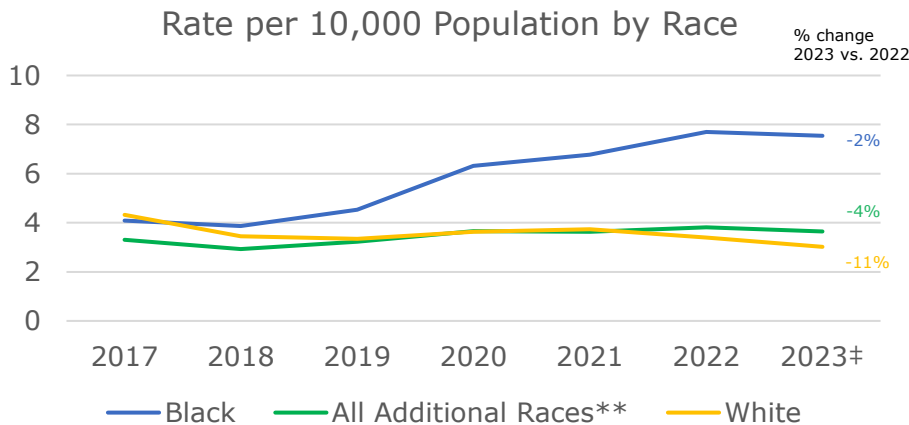
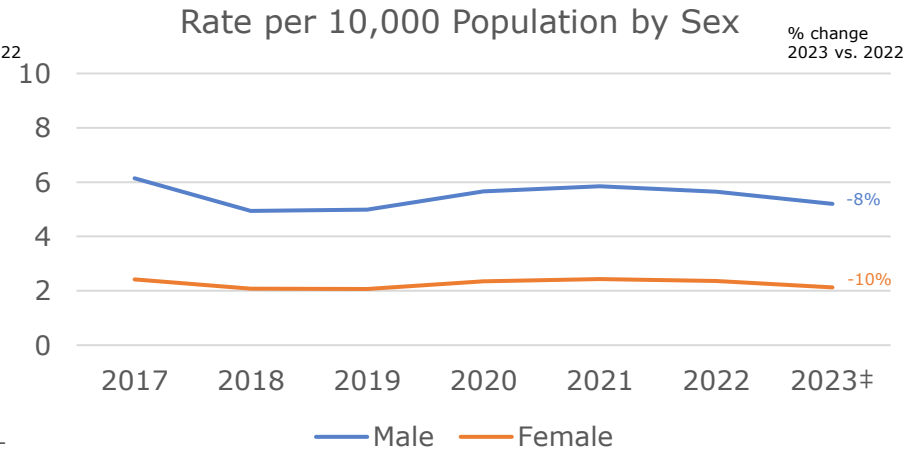
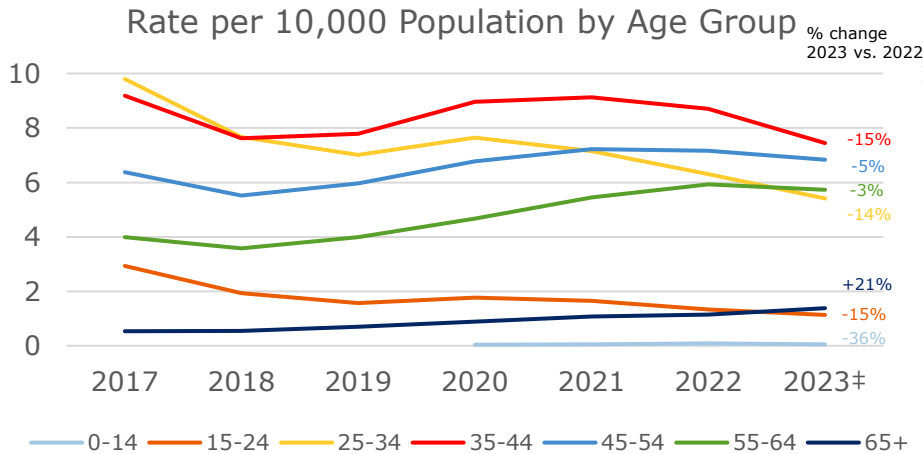
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Data by Demographics

Estimated Any Drug† Overdose Deaths by Demographics, 2017 – 2023‡



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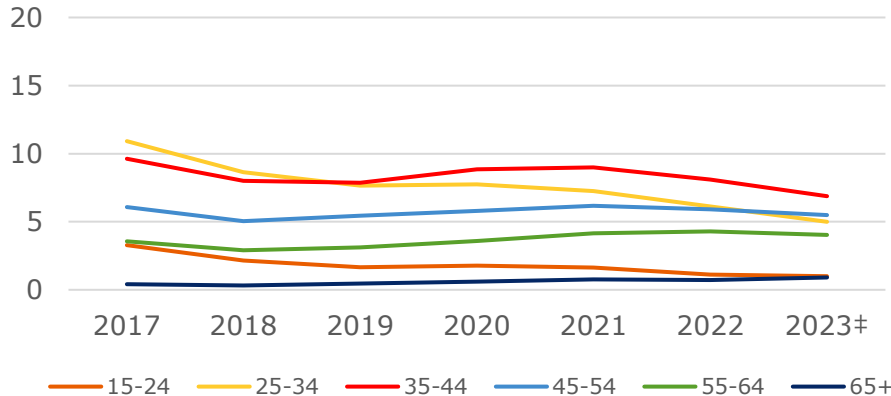
** Includes persons who identify as Asian, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, or Other Race

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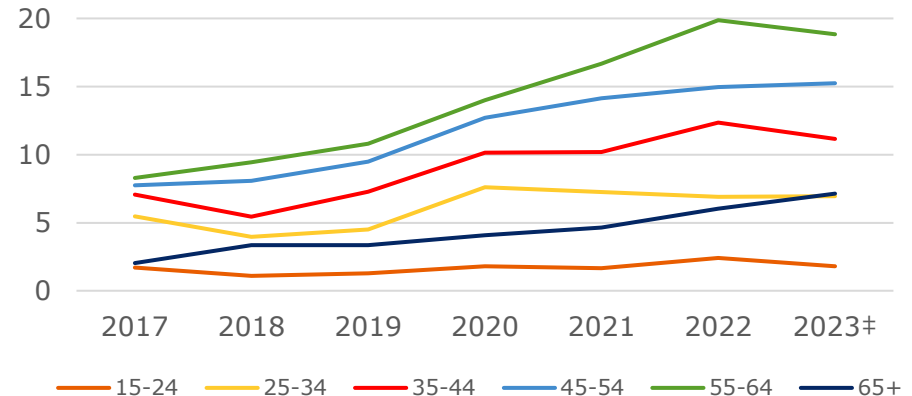


Estimated Any Drug† Overdose Deaths by Race and Age, 2017 – 2023‡

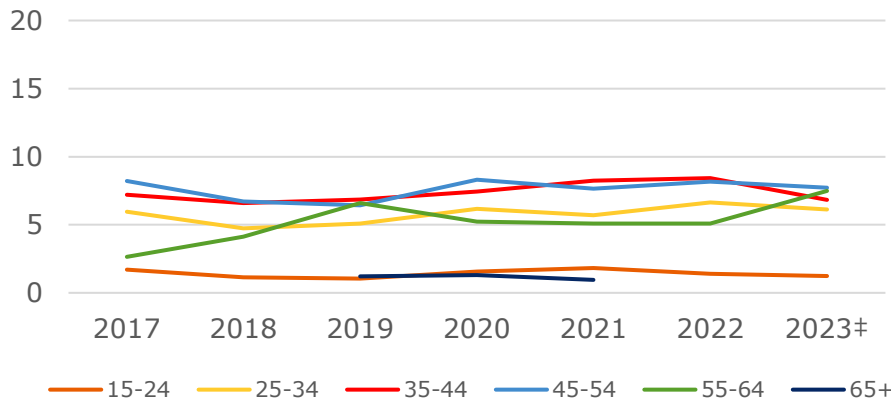
White



Black



All Other Races



In 2023, rates among Black individuals are higher for all age groups.

- Among 45-54 year olds, rates are nearly 3 times higher among Black individuals compared to white.
- Among 55-64 year olds, rates are nearly 5 times higher among Black individuals compared to white.

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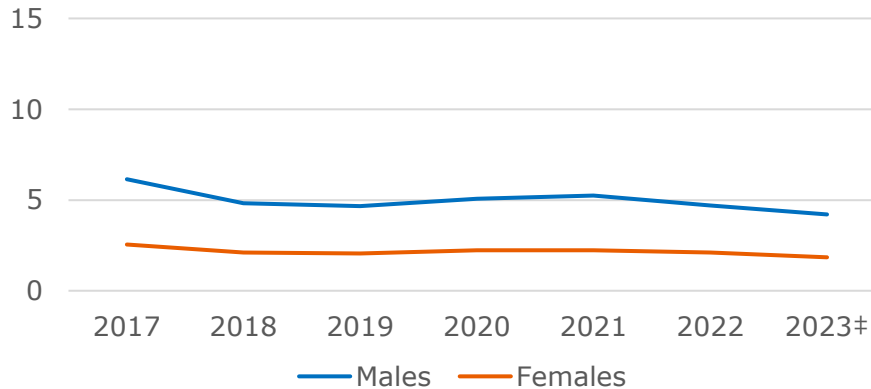
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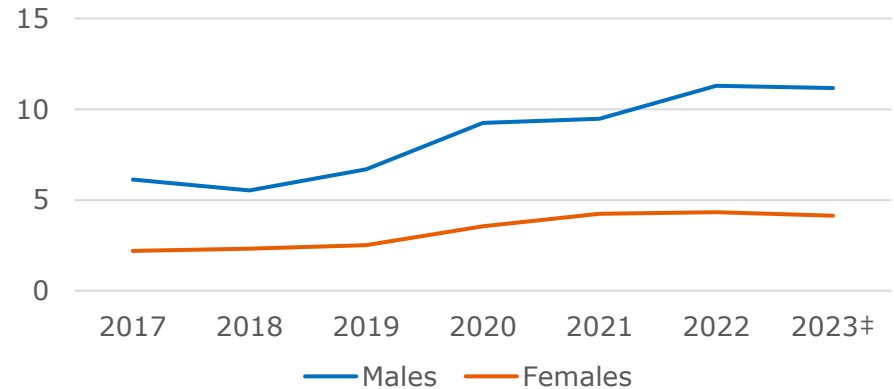


Estimated Any Drug† Overdose Deaths by Race and Sex, 2017 – 2023‡

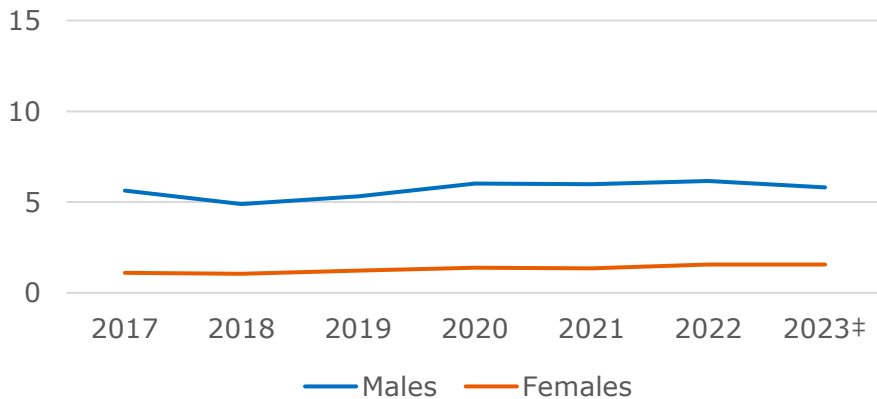
White



Black



All Other Races



In 2023, rates are higher for both Black men and women.

- Rates are more than twice as high as rates for white women.
- Rates are over 2.5 times as high as rates for white men.

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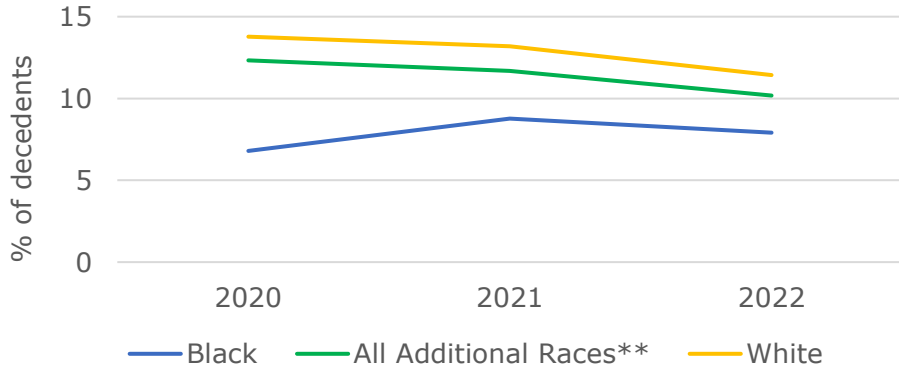
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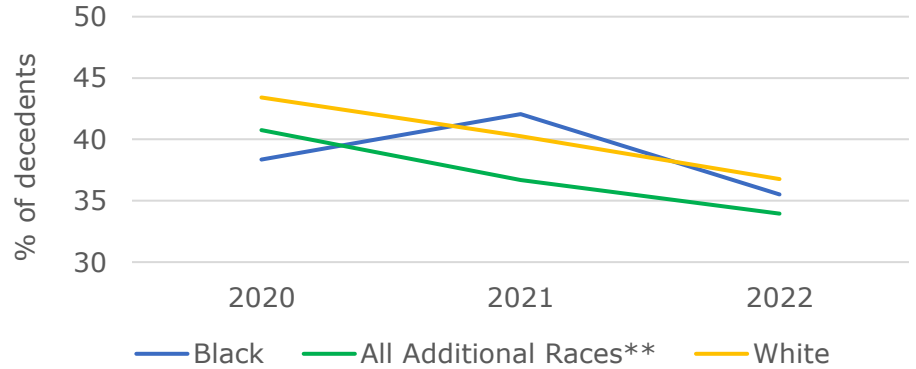


Enhanced Data for Any Drug† Overdose Deaths by Demographics for Participating Counties‡, 2017 – 2022

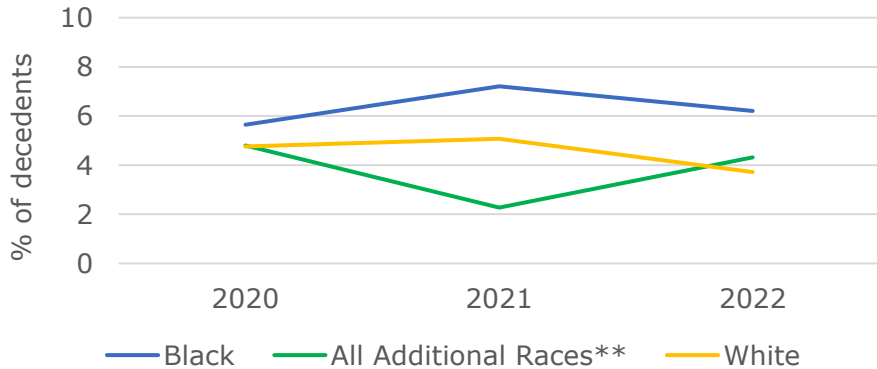
Evidence of Naloxone Administration



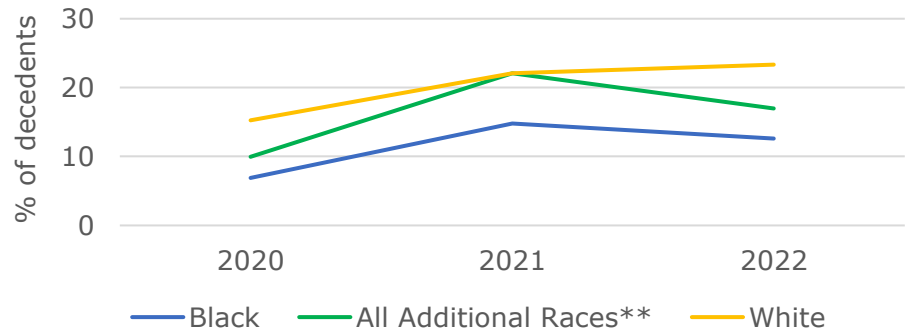
Evidence of a Bystander Present



Fatal Drug Use Witnessed



Evidence of Ever Receiving Substance Abuse Treatment



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‡Details on Participating Counties and metric definitions can be found in the [Overdose Data Technical Notes](#).



Emerging Drug Trends

Emerging Drugs Contributing to Death

Substance	2023‡	2024‡
Designer Benzodiazepines^{1*}	149	94
Nitazenes²	16	17
Carfentanil³	1-5*	6
Tianeptine⁴	1-5*	1-5*
Medetomidine⁵	0	11
Xylazine⁶	1162	494

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*Including flualprazolam, etizolam, clonazolam, flubromazolam, diclazepam, and bromazolam.

- https://www.deadiversion.usdoj.gov/drug_chem_info/benzo.pdf
- <https://pmc.ncbi.nlm.nih.gov/articles/PMC10361140/>
- https://www.pbm.va.gov/AcademicDetailingService/Documents/Pain_Patient_FentanylCarfentanil_IB101137.pdf
- https://www.deadiversion.usdoj.gov/drug_chem_info/tianeptine.pdf
- <https://jamanetwork.com/journals/jama/fullarticle/2823005>
- <https://nida.nih.gov/research-topics/xylazine>



New program aiming to:

- ▮ Enhance non-fatal overdose surveillance
- ▮ Identify new and novel substances in drug supply
- ▮ Analyze comprehensive toxicology data on drugs contributing to overdose
- ▮ Inform data-driven response

In partnership with:

- ▮ PA DOH Office of Drug Surveillance and Misuse Prevention & Bureau of Labs (BOL)
- ▮ Health Systems
 - ▮ Penn State Health
 - ▮ UPMC
 - ▮ Temple University Hospital
 - ▮ 1 additional Health System



Overdose Biosurveillance

Emergency Departments collect biologic samples during patient assessment*

**Following current ED protocol*

Leftover specimen sent to PA DOH BOL for toxicology testing

Test results compiled with Drug Overdose Surveillance Epidemiology (DOSE) data

Enhanced data reports sent to ODSMP Epidemiology Team

Data informs prevention strategies and aggregate findings are reported to stakeholders



Additional Resources

- The following Health Alerts (HANs) were disseminated by
 - Pennsylvania Department of Health
 - [Medetomidine](#)
 - [Emerging Substances](#)
 - [Disrupted Access to Prescription Stimulants](#)
 - [Severe Illness Potentially Associated with Diamond Shrooms Brand edibles](#)
 - Philadelphia Department of Public Health
 - [BTMPS](#)
 - [Etomidate](#)
 - Center for Forensic Science Research and Education
 - [Public Alerts](#)
 - PA Groundhogs
 - [Public Alerts](#)
- The following manuscript was published online May 29 and in the August edition of the peer-reviewed journal Addiction on July 2: [Inequities in naloxone administration among fatal overdose decedents by race and ethnicity in Pennsylvania, 2019–21 - Takemoto - Addiction - Wiley Online Library](#)



Contact Information

For additional information on Drug Overdose Deaths, as well as Overdose-Related Emergency Department Visits, please visit the [Drug Overdose Surveillance Interactive Data Report](#)

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