

PURPOSE: This report provides up-to-date information regarding the drug supply and was developed in collaboration with organizations located in the Mid-Atlantic region of the United States, particularly in Philadelphia, Southeastern Pennsylvania, and surrounding areas.

OBJECTIVE: Partnerships between the Center for Forensic Science Research and Education (CFSRE), the Philadelphia Department of Public Health (PDPH), and Pennsylvania Groundhogs Group (PAG) were established to accurately assess the drug supply in the Mid-Atlantic region, epi-centered around Philadelphia, PA. Drug samples were collected by PDPH and PAG staff conducting field-based drug checking assessments and directed to the CFSRE for laboratory analysis. The scope of testing contains more than 1,200 drug targets, including a great number of NPS and relevant substances. This initiative examines a variety of drug materials. Note: The results reported herein represent a subset of the drug supply and do not represent the drug supply in its entirety.

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SUMMARY & NOTABLE FINDINGS

- ▶ 669 samples were tested from October 1 to December 31, 2025.
- ▶ Quantitative results for opioid samples are included in this report for the measured amounts of fentanyl, medetomidine, and combined local anesthetics (lidocaine, procaine, and tetracaine); the former two of which were shown to increase over time.
- ▶ Fentanyl adulteration shifts continued: alpha-2 agonists were common, in favor of medetomidine, and local anesthetics (e.g. lidocaine, procaine, tetracaine) maintained their prevalence.
- ▶ The novel opioid 5,6-Dichloro Desmethylchlorphine (SR-17018) was detected once in Q4 2025, but others have yet to emerge in this region. Nitazene analogues were not detected by GC-MS this quarter and fentanyl analogues (e.g., carfentanil) were detected less frequently than in previous quarters.
- ▶ BTMPS observations continued to decrease as this substance was detected in 16 of 368 tested fentanyl samples and 5 of 34 heroin samples. Surprisingly, hybrid BTMPS-tetramethylfentanyl intermediaries, tetramethyl-4-AP and tetramethylnorfentanyl, were detected in 6 of 34 heroin samples, in which fentanyl was only a very minor component or not detected at all.

FIGURE 1: SAMPLES TESTED IN Q4 2025, CLASSIFIED BY THEIR PRIMARY DRUG SUBSTANCE

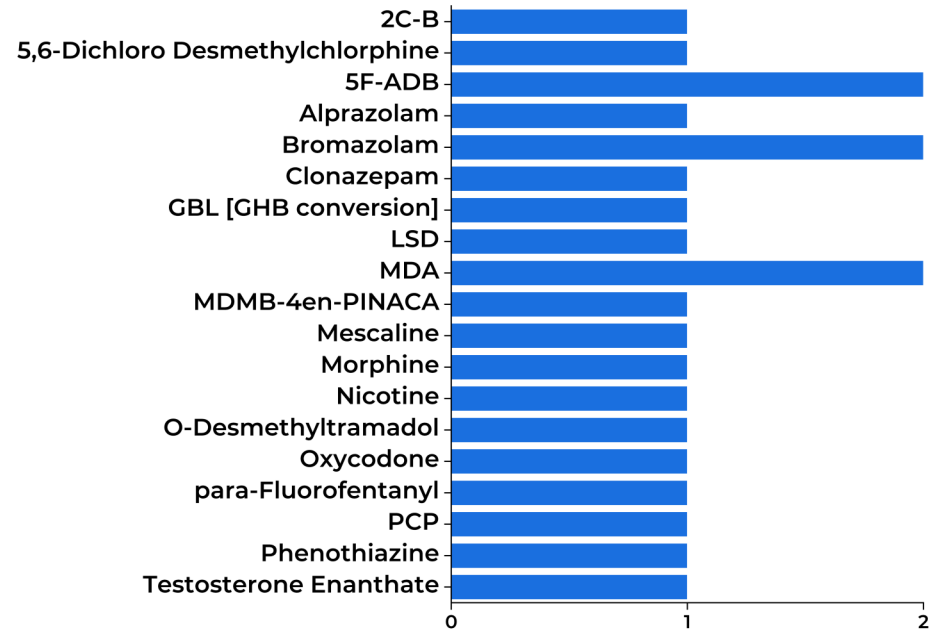
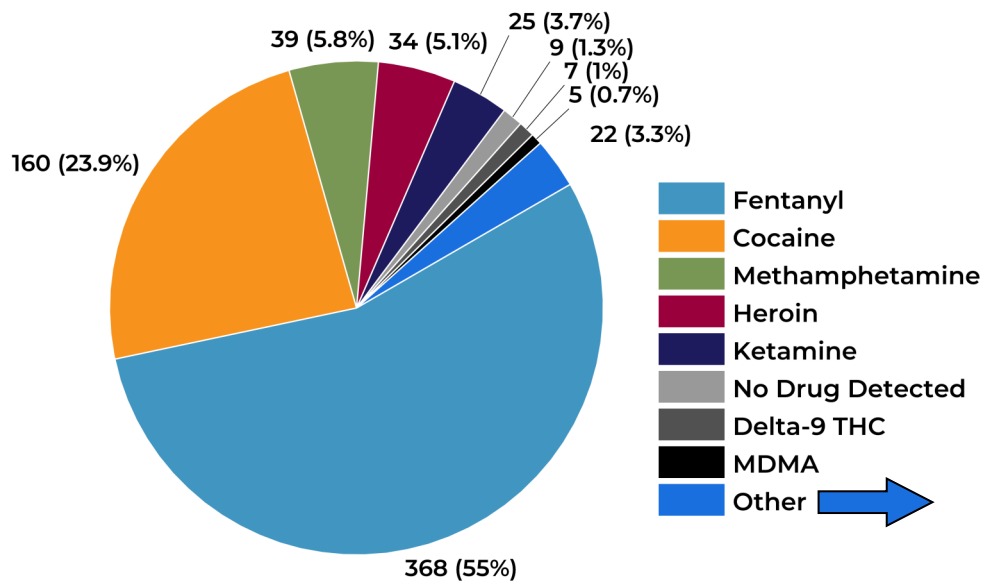
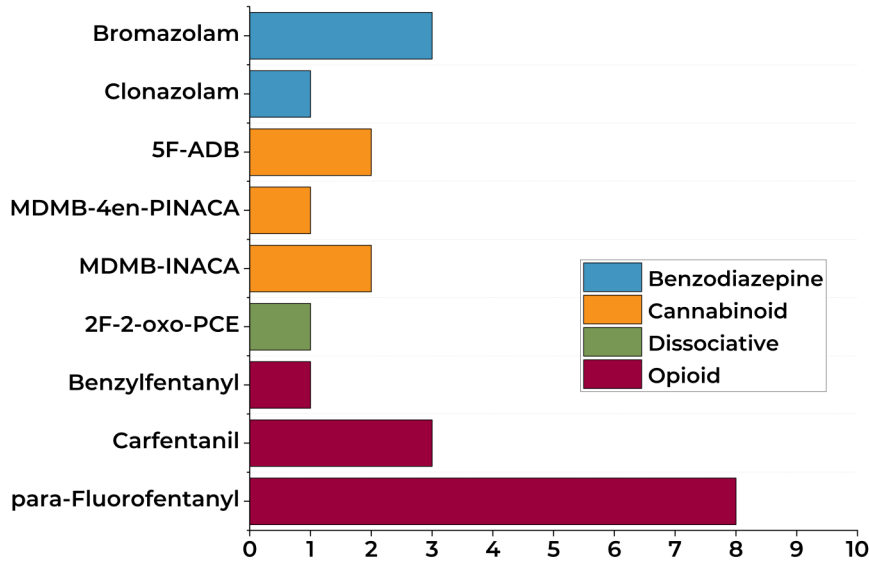


FIGURE 2: TOTAL NPS DETECTED IN Q4 2025

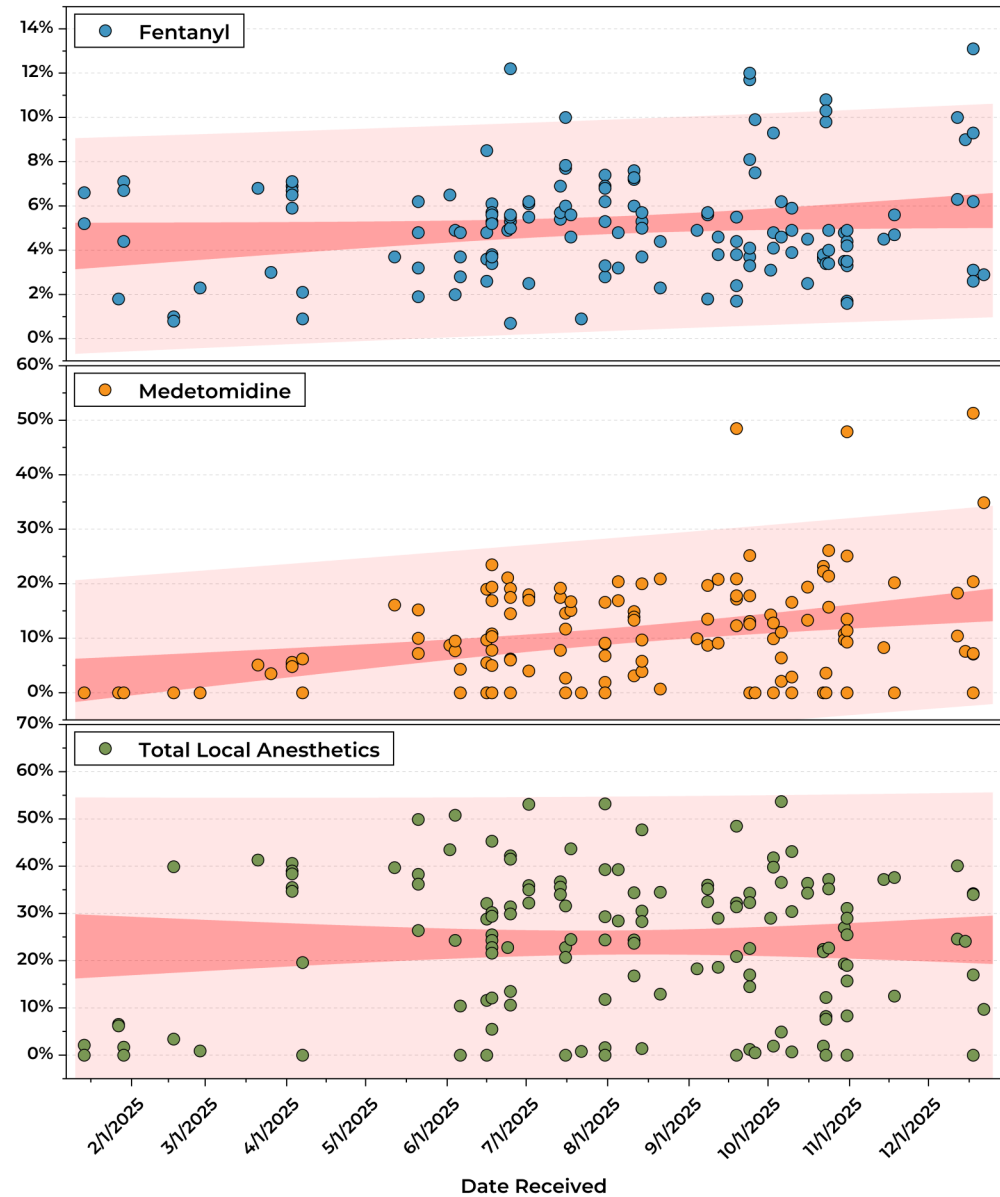


IDENTIFICATIONS: Qualitative results indicate a drug is detected in a sample. Figure 1 (Page 1) shows the qualitative results for samples categorized by their primary drug, defined as the most abundant drug substance detected by gas chromatography-mass spectrometry (GC-MS). Major substances are summarized in the pie chart (Figure 1, left), while “other” substances (a category comprising less frequently observed substances) are expanded by counts in the bar chart (Figure 1, right). Of important note, the “primary drug” is defined as the most abundant traditional drug (e.g., fentanyl, methamphetamine, cocaine), pharmaceutical drug, or NPS; for samples in which the most abundant substance is an adulterant or cutting agent, the primary drug may not be the most abundant substance.

Figure 2 shows the number of NPS detected during our GC-MS analysis in the Mid-Atlantic region. Some observations may represent a very minor component of the sample. Very trace identifications made only during our more sensitive LC-QTOF-MS analysis are not reflected in this report, but are included in our **NPS Discovery Trend Reports**, as well as reports from PDPH. For example, carfentanil was detected in a total of 89 Mid-Atlantic samples when results obtained by LC-QTOF-MS analysis are included.

QUANTITATIVE ANALYSIS: Quantitative analysis (% w/w) of fentanyl-primary samples analyzed in 2025 are shown in Figure 3. While highly variable among individually measured values, we observed a slight upward trend in the predicted average fentanyl amount from ~4% to ~6%. There was an approximate 3x increase in predicted average medetomidine amount from ~5% to ~15%. At a predicted average of nearly 25%, we did not observe an increase in the average total amount of local anesthetics (i.e., summed percentages of lidocaine, procaine, and tetracaine). *NOTE: Observations of 0% medetomidine and 0% local anesthetics were accounted for in these data, while all samples contained quantifiable amount of fentanyl.*

FIGURE 3: QUANTITATIVE ANALYSIS OF FENTANYL



COMBINATION ANALYSIS: As shown in Figure 4, samples containing primarily fentanyl were nearly always found with adulterants or other drugs, and regularly contained medetomidine (88%) and/or one or more local anesthetic: lidocaine (71%), procaine (69%), and/or tetracaine (47%). Less frequently detected adulterants included caffeine (a consistent finding in the Mid-Atlantic region) and xylazine. Heroin samples were found to have a higher rate of observation with the substance BTMPS and other tetramethylfentanyl-related intermediaries than fentanyl samples. For comparison, in 2024 and early 2025, BTMPS was more commonly associated with fentanyl samples.

Figure 5 shows that significant changes among the Mid-Atlantic region's "dope" (fentanyl) supply have occurred over the past two years. From Q1 2024 to Q4 2025, the proportion of fentanyl samples testing positive for xylazine significantly decreased from 97% to 21% while the proportion of fentanyl samples

testing positive for medetomidine significantly increased from negligible to 88%. During this time timeframe, a tremendous rise in adulteration of fentanyl with local anesthetics in the Mid-Atlantic region occurred, increasing from <15% to ~90% of samples positive for one or more local anesthetic.

IMPORTANT: The co-occurrence of cocaine, methamphetamine, and heroin with substances commonly observed alongside fentanyl (e.g., medetomidine) is often due to low levels of fentanyl present. Some cocaine samples containing fentanyl may have been sold as fentanyl ("dope") and the cocaine is present as an adulterant, despite cocaine being the more abundant drug substance, or the two could have been mixed (e.g., speed-ball) prior to our testing without our knowledge. Classifying samples based upon chemical analysis alone remains a challenge and we do not make assumptions about how these samples were sold, handled, or intended to be used.

FIGURE 4: COOCCURRENCE OF (Y) BY PRIMARY DRUG (X)

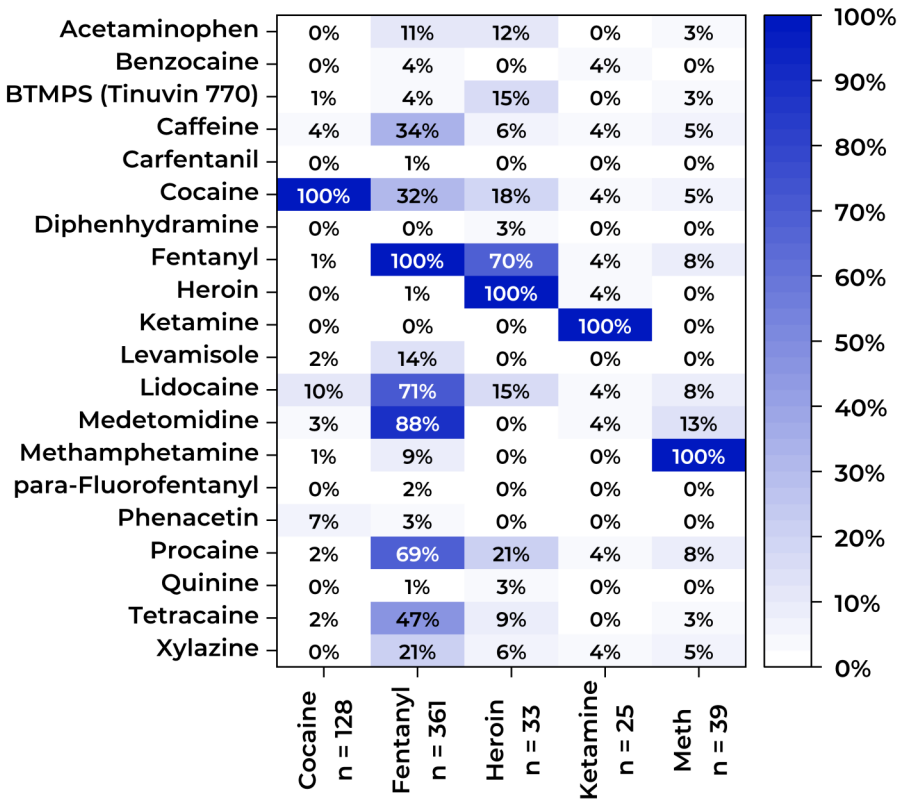
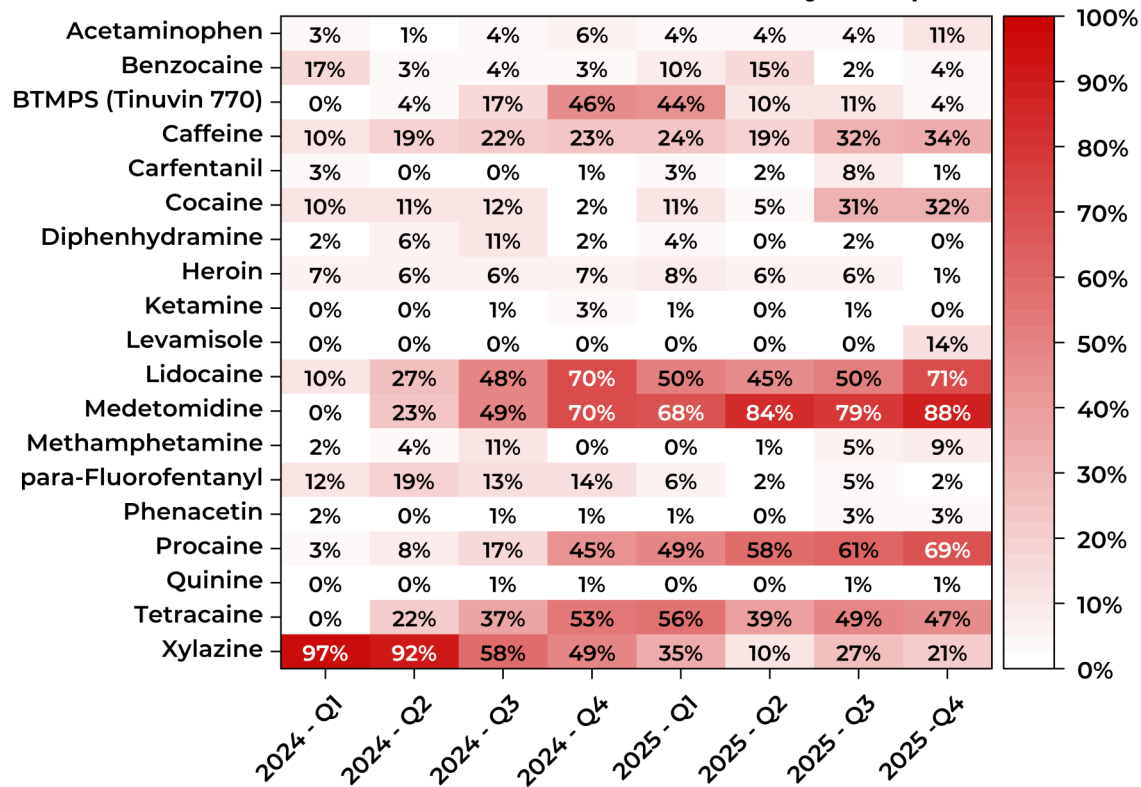


FIGURE 5: COOCCURRENCE OF (Y) IN FENTANYL OVER TIME



NOTES: Figure 4 and 5: Selected co-occurring analytes shown from GC-MS analysis. Figure 5 analysis includes only fentanyl-primary samples.

DISCLAIMER: There are limitations to the data presented. The dataset is not representative of the entirety of the Mid-Atlantic drug supply. Samples were not collected at random.