NFLIS
NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM
DRUG MEC TOX
MEC/TOX
DRUG ENFORCEMENT ADMINISTRATION
DIVERSION CONTROL DIVISION
BRIEF

Toxicology Testing Practices for Phenethylamines, Piperazines, Synthetic Cannabinoids, and Synthetic Cathinones Across the Nation

The National Forensic Laboratory Information System (NFLIS) is a Drug Enforcement Administration program that systematically collects results of forensic analyses, and other related information, from local, regional, and national entities. From June through October 2017, NFLIS administered surveys that collected calendar year 2016 data from 231 toxicology laboratories (TLs) and 971 medical examiner/coroner offices (MECs) across the United States. Results from the TL and MEC Office Surveys were previously published.[1,2] This publication provides additional data not presented in the survey reports and displays findings from responding TLs about their toxicology testing frequency and quantification for phenethylamines (e.g., 2-CI, 25I-NBOMe), piperazines, synthetic cannabinoids, and synthetic cathinones overall and by laboratory ownership (private or public) and caseload size (small, medium, or large). Findings from responding MECs are reported by type of office (medical examiner or coroner office) and jurisdiction size.

Figures 1 and **2** summarize the toxicology analysis frequency and quantitative analysis frequency that TLs reported as "always" by laboratory ownership and caseload size of the responding laboratory, respectively. Reporting "always" for quantitative analysis testing was defined as always quantifying positive results for the particular drug or drug class. Higher percentages of small TLs reported always testing for phenethylamines and piperazines than medium and large TLs (Figure 1). Lower percentages of small and medium TLs reported always testing for synthetic cannabinoids than large TLs. Higher percentages of public TLs reported always testing for phenethylamines, piperazines, and synthetic cathinones than private TLs. Private TLs reported higher percentages of testing synthetic cannabinoids than public TLs. Large and private TLs reported always quantifying phenethylamines, piperazines, synthetic cannabinoids, and synthetic cathinones at a higher percentage than medium, small, or public TLs (Figure 2).

Figure 1 Frequency of Toxicology Testing Reported as "Always" by Toxicology Laboratories

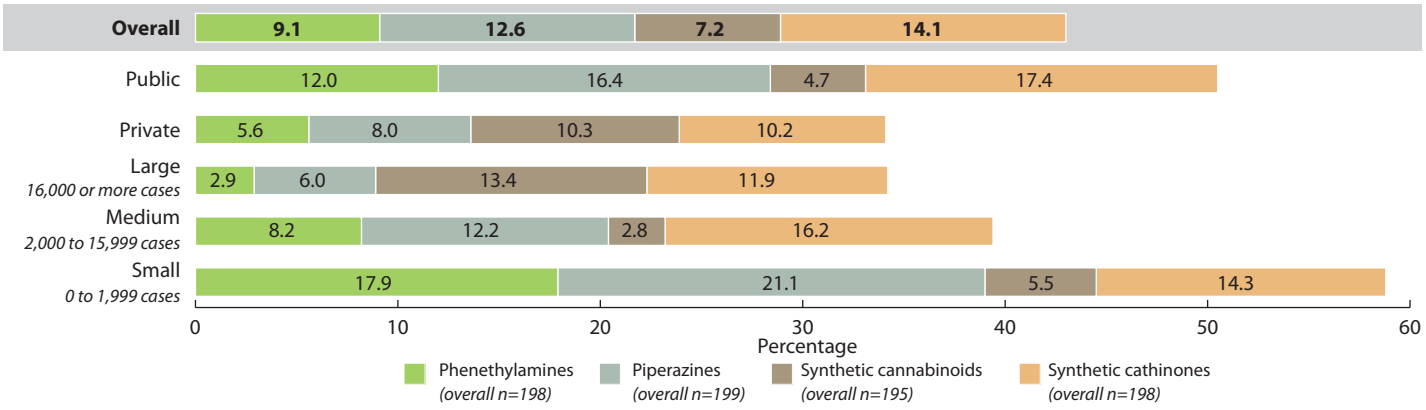
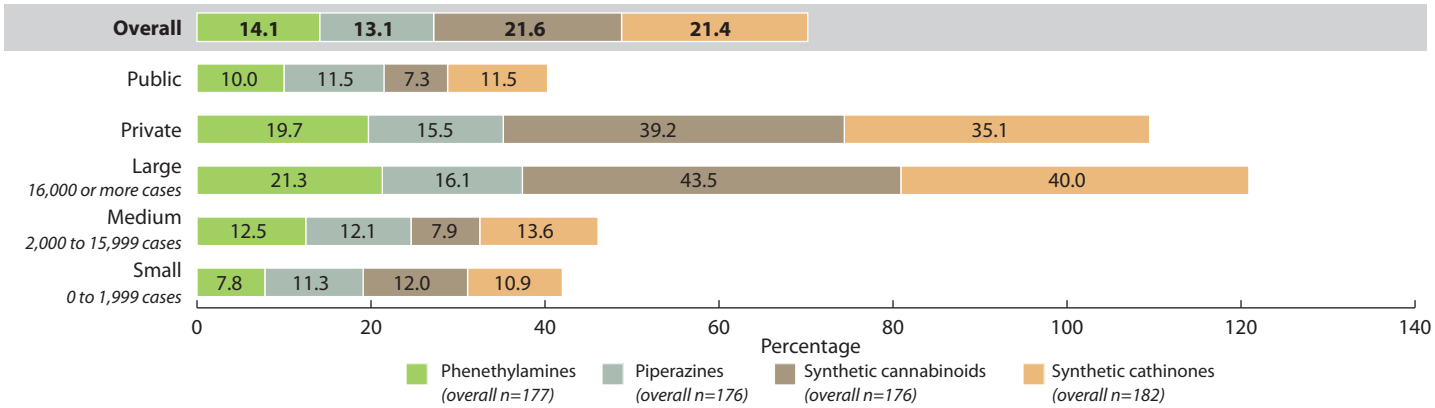


Figure 2 Quantitative Analysis Frequency Reported as "Always" by Toxicology Laboratories



Overall, synthetic cannabinoids and synthetic cathinones were more likely to be quantified than phenethylamines and piperazines.

Figure 3 shows TL responses to using a reference laboratory for toxicology testing. Respondents were asked if their TL requested toxicology analysis from any reference laboratories for a drug or drug class. For all drug classes shown in Figure 3, a smaller percentage of large TLs reported using a reference laboratory than medium or small TLs. Across all drug classes, a higher percentage of public TLs than private TLs reported using a reference laboratory.

Figures 4 and **5** summarize the toxicology analysis frequency and quantitative analysis frequency reported as "always" by MECs. Data are also shown by jurisdiction size (small, medium, and large) if reported by the MEC. Regardless of drug class, a higher percentage of medium jurisdictions reported always requesting toxicology analysis than large or small jurisdictions for phenethylamines, piperazines, synthetic cannabinoids, and synthetic cathinones (Figure 4). A lower percentage of small jurisdictions reported always quantifying phenethylamines, piperazines, synthetic cannabinoids, and synthetic cathinones (Figure 5).

Figure 3 Use of Reference Laboratories by Toxicology Laboratories

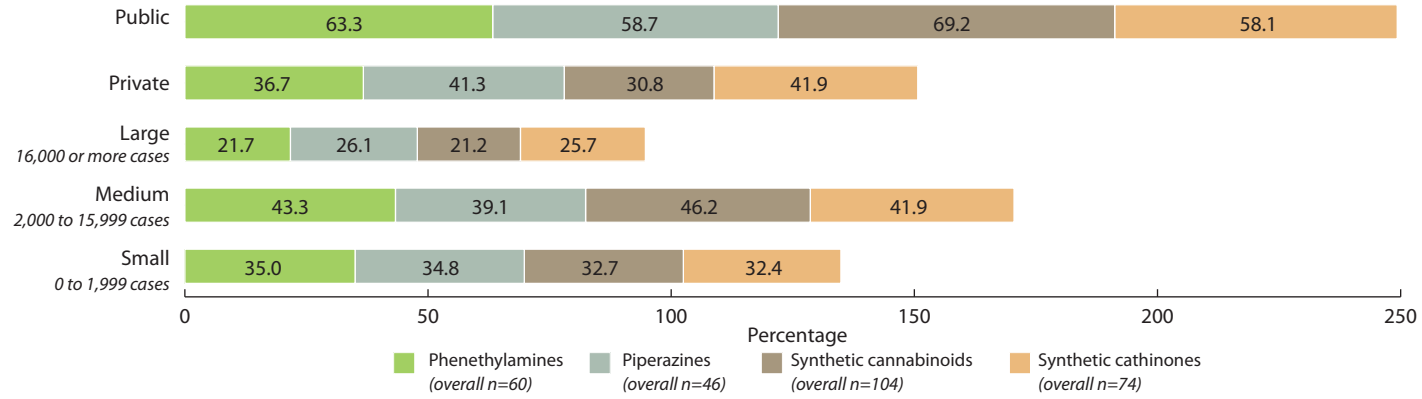


Figure 4 Toxicology Testing Frequency Reported as "Always" by Medical Examiner and Coroner Offices

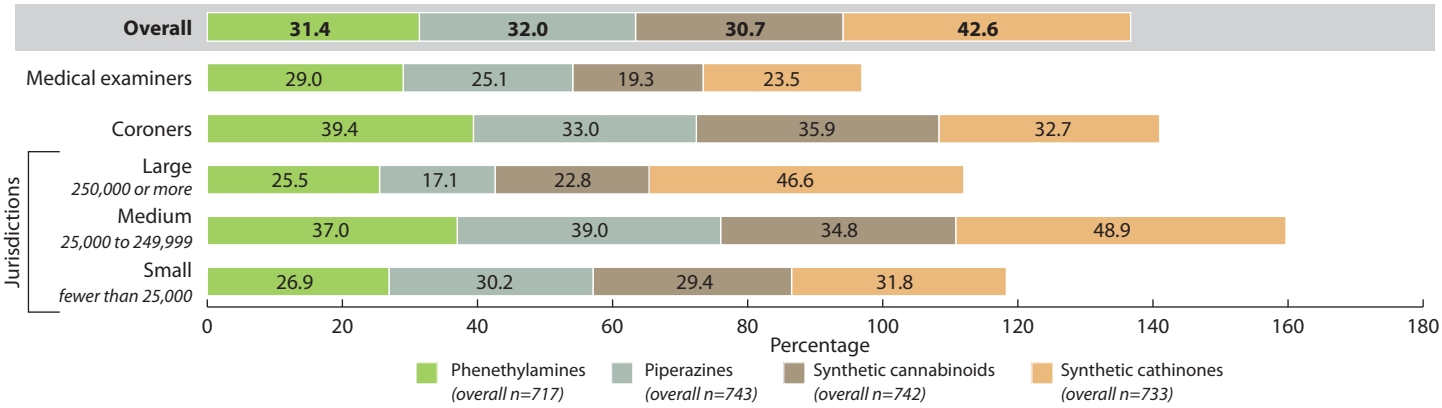
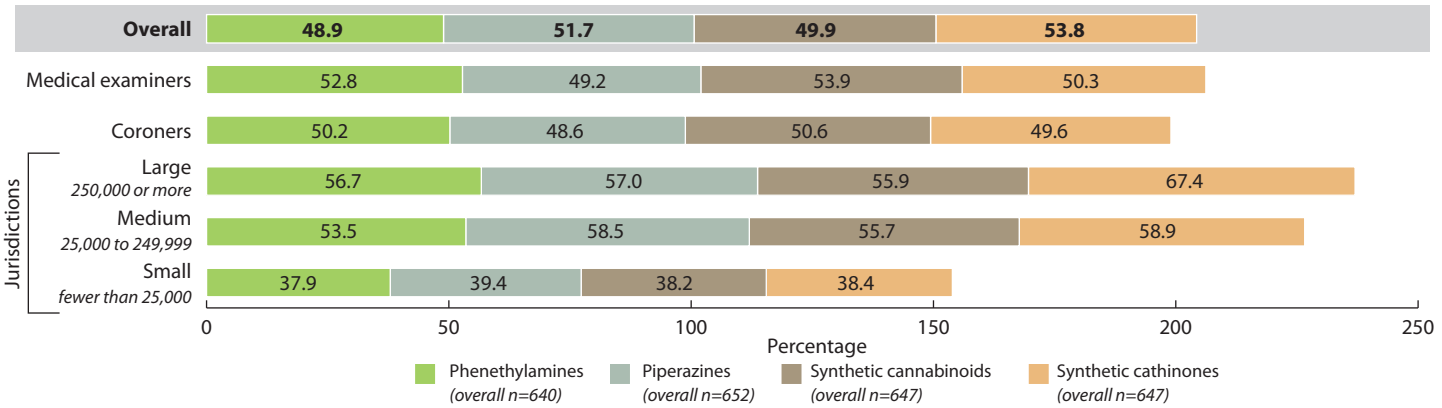


Figure 5 Quantitative Analysis Frequency Reported as "Always" by Medical Examiner and Coroner Offices



[1] U.S. Drug Enforcement Administration, Diversion Control Division. (2018). *2017 Toxicology Laboratory Survey Report*. Springfield, VA: U.S. Drug Enforcement Administration.
[2] U.S. Drug Enforcement Administration, Diversion Control Division. (2018). *2017 Medical Examiner/Coroner Office Survey Report*. Springfield, VA: U.S. Drug Enforcement Administration.