



A39 Size Doesn't Matter... Or Does It? The Implications of Sampling Strategies in Forensic Drug Analysis

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After attending this presentation, attendees will have an understanding of the issues relating to sampling strategies for the analysis of illicit drugs.

This presentation will impact forensic drug community by illustrating the statistical viability or otherwise of sampling strategies used in the analysis of illicit drug seizures.

Determination of an appropriate sample size has long been an issue with regard to the sampling of both large and small volumes of homogeneous material. It is inefficient and unnecessary for each and every unit within a population of relatively similar items to be analyzed;

however, it is important that the sample size chosen results in an accurate reflection of the overall population.

Various strategies have long been used to determine appropriate sample sizes, and have been employed in many areas of forensic science, from the analysis of glass fragments to the analysis of units which may or may not contain controlled substances.

This work used and compared four commonly employed sampling strategies in industry. These were one arbitrary method, two frequentist approaches, and a Bayesian approach. Sample sizes were calculated using the European Network of Forensic Science Institutes (ENFSI) drug working group protocol for sampling. They were applied to the sampling of illegal drugs, where a large population of amphetamine tablets ($n=100$) was to be analyzed. Initially portions of all one hundred units were extracted and analyzed. Following this a randomly selected sub group of the larger group were re analysed where the number was determined by the sampling strategy employed. Statistical tests were used in order to determine how well the resulting sample sizes truly represented the characteristics of the whole population. The results of the statistical analysis are presented in this work.

Drug Seizures, Sampling Strategy, Statistics