



### A192 Mitigating Risk in the Forensic Drug Chemistry Laboratory

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After attending this presentation, attendees will learn of key measures to reduce the chance of analytical errors and the opportunity for intentional misconduct in a forensic drug chemistry laboratory.

This presentation will impact the forensic science community by showing specific responses to well-known lapses of laboratory integrity in the hopes of preventing these occurrences in other laboratories.

By studying the policies and practices of laboratories that have experienced “dry labbing” and/or data falsification incidents, it is possible to identify a series of risk factors that are likely to foster these inappropriate behaviors that may occur unnoticed. Six key factors that should be monitored in order to mitigate the risk of malfeasance are: the opportunity for forgery/falsification; failure to perform analyses; unverified exceptional productivity; lack of physical visibility; inappropriate communication with customers; and ineffective supervisory responses when potential issues arise.

**Forgery/Falsification:** As chemists inevitably become acquainted with co-workers’ signatures and handwriting, it may be tempting to forge initials on instrument maintenance logs or other data in order to “improve productivity.” However, the implementation of PIN-protected signatures through a Laboratory Information Management System (LIMS) system, or document viewer, eliminates this scenario. In order to guard against chemists claiming credentials they do not legitimately possess, training certificates, as well as copies of all degrees, should remain on file and be verified annually.

**Failure to Perform Analyses:** A primary method of ensuring that analysis is truthfully performed is through the implementation of analytical processes that provide reviewable data. This includes all instrumental data as well as photographs of microscopic botanical characteristics and color tests. Traceable balance software can be implemented that not only captures sample weight data, but prevents any weighing event from occurring if the required calibration check was not successfully performed. In order to prevent casual access to analytical standards, which may be used to spike a drug sample, access should be minimized. Additionally, non-traditional case workflows may be implemented to increase quality assurance levels as well as increasing the number of individuals involved in a single case.

**Unverified Productivity:** Laboratory and individual productivity should be monitored on at least a monthly basis, and the activities of staff with an abnormally high or low productivity should be scrutinized. An analyst with exceedingly high output should be closely monitored. Basing promotions or incentives on productivity alone creates an environment which promotes “cutting corners” in analysis.

**Lack of Visibility:** While it may not always be possible to modify the physical layout of the laboratory, providing an analyst with an isolated environment with no accountability is ill-advised. Locating all analysts in the same location prevents any type of secrecy. Additionally, the installation and active monitoring of security cameras provides both a deterrent to misconduct as well as a means by which questionable incidents may be readily reviewed.

**Inappropriate Communication:** In order to best avoid bias, policies should be in place — and actively enforced — such that laboratory analysts have minimal contact with customers, and that any contact that does occur is properly documented. If routine contact with a law enforcement or judicial agency is required, it is recommended that non-analytical staff be utilized for these communications.

**Effective Supervision:** In any laboratory environment, competent, effective supervision of analysts is critical. Policies should be in place that encourage employees to be aware of, and report, any suspected misconduct. When such reports are received, it is imperative that management follow up with a prompt investigation, potentially requiring the temporary removal of an analyst from casework while the investigation proceeds, as a precautionary measure.

The measures listed above, and others, have been implemented over time at the Harris County Institute of Forensic Sciences with minimal impact on turnaround time (after an initial acclimation period), in an effort to protect the integrity of the submitted evidence, the data the laboratory produces, and the chemists of the laboratory.

#### Dry Labbing, Data Falsification, Risk Management