

## Quality Assurance

### Inaugurating Data Integrity in Forensic Science

*Ashraf Mozayani, Texas Southern University, United States*

Abstract: Data Integrity is generating the data that is ethical, analyzed by acceptable analytical techniques, traceable and defensible. While the vast majority of forensic analysts are all dedicated, hardworking seekers of the truth, the fact remains that forensic scientists and forensic science laboratories toil in an arena in which their actions frequently come under public scrutiny. This perception is fueled by news reports about individual analysts who are found falsifying results, contaminating evidence, producing improper testimony during legal proceedings or the laboratories that using the evidence by methods that are not validated or not accepted by scientific community. As a direct result of this continued public scrutiny, it is imperative that forensic laboratories should be proactive to develop, implement, and maintain data integrity policy for all the validated analysis and services that they provide to their customers and ultimately to the community.

The objective of this presentation is to study the aspects and causes of data manipulation, and acquire steps to establish an effective and rigid policy and standard operating procedure that maintains data integrity across disciplines. To build the foundation of this procedure it is important to review causes of laboratory fraud. Unfortunately, these cases are bountiful, ranging from DNA contamination and dry labbing, to analysts selling drugs on the street that were smuggled from the laboratory in Florida and Texas. These cases have occurred in places such as Houston, Boston, and DNA contamination that suspended testing at the Washington D.C. laboratory. These cases include impropriety by analysts using instrumentation data incorrectly, as well as presenting improper or incorrect testimony in courtroom proceedings or many times not testing the evidence according to acceptable and validated methods. They also include examples of oversight by management, emphasizing quantity over quality as well as instances of unrealistic expectations for case acceptance and management. These cases can include negligence that may be caused by a need to increase productivity by limiting a thorough technical and administrative review.

The addition of and strengthening of a quality control system is a key step in the development of a standard operating procedure for ensuring data integrity. The purpose of this procedure should at least be to describe the details of a laboratory's data integrity system, to point out the significance of ethics in the performance of all acceptable analytical work, to acquire the obligation of laboratory staff to the belief that all analyses shall be achieved in a controlled and documented manner, and to confirm that laboratory staff always convene the specific ethical requirements described in the organization data integrity plan. The data integrity policy will benefit the staff to understand the steps of monitoring data integrity through changing laboratory culture, emphasizing in non-conflict environment, training and monitoring of staff and assertive other managerial actions.