



Criminalistics Section - 2016

B214 What Errors Are We Looking for and How Can We Look for More?

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After attending this presentation, attendees will better understand how different types of errors that may occur in a forensic science laboratory can be discovered and what steps may be taken to expand the detection of additional errors that occur during testing and reporting of test results.

This presentation will impact the forensic science community by providing information on the importance of error detection and the approaches that can be used to expand the recognition of errors, with particular focus on the detection of false positive and false negative results and conclusions.

It is human nature to make mistakes. It should come as no surprise that human errors occur in crime laboratories, and thus all accredited forensic science laboratories must have quality-assurance programs in place with procedures for the detection, evaluation, and resolution of errors. Technical errors, failures in the testing assay, and some types of contamination can often be detected through the use of positive and negative controls. Technical review processes can often prevent the reporting of some mistakes in the final laboratory report, such as misinterpreted data and typographical errors, through the independent re-evaluation of the data, interpretation, and conclusions. Proficiency tests are required for the routine monitoring of the laboratory test assays and for the ability of the analyst to correctly perform the testing procedure and report the test results and conclusions. Based on any findings of errors detected through these various processes, it is common practice for the laboratory staff to research the cause of the errors and to take corrective actions to ensure the appropriate test results are obtained and reported in an affected case. In addition, when the cause of the error can be determined, corrective actions can be put in place to improve policies, procedures, and practices in the laboratory to prevent future errors of a similar nature.

Many of these quality-assurance practices aid in the detection of errors that can be corrected prior to the reporting of the final test results and conclusions. But how effective are these procedures for detecting *all* errors that are made in a laboratory? Are there other practices that could be considered for the detection of additional errors that are now being incorrectly reported? Are there additional mechanisms that can be put in place in a laboratory to improve the recognition of false positive or false negative associations (defined here as the incorrect association of an individual to evidence from a crime scene and the failure to detect the association of an individual to evidence from a crime scene, respectively)? These questions will be the basis of this presentation, which will provide information regarding what errors are currently being looked for, the effectiveness of that self-assessment, and some suggestions of methods that could be employed to expand the evaluation of laboratory error and detection with the goal of providing the best services to the forensic science community.

Errors, Quality Control, False Positive