D30 Limitations Associated With the Examination and Presentation of Fingerprint Evidence

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After attending this presentation, attendees will understand the critical decision-making points in the fingerprint comparison process, the types of errors that may occur, the research that tests examiner performance, and the limitations associated with reporting and testimony.

This presentation will impact the forensic science community by highlighting the limitations associated with both the examination and presentation of fingerprint evidence.

The analysis, comparison, and evaluation of latent fingerprints are an interpretive process. Examiners apply the knowledge gained through training and experience, in addition to the current research in the field, to reach a decision when conducting fingerprint examinations. As with any subjective process, human factors can influence the outcome of latent print examinations. This presentation will discuss the steps involved in the latent print examination process, identifying those that are potentially the most susceptible to cognitive biases. Quality assurance measures, such as documentation and verification, may be implemented to minimize the effects of various human factors and reduce variability in the examination process.

During the latent fingerprint comparison process, examiners are assessing the quality and quantity of information in the prints. If this information is misinterpreted, an error may result. Errors may occur during the examination process (false positive or false negative) or during the presentation of evidence in reports or testimony (overstating or understating the value of the conclusion). As such, examiners need to state their opinion and provide the scientific basis to support that decision, while clearly expressing the limitations of the science.

The literature related to error rates emphasizes the difficulty in calculating a meaningful error rate for both individual practitioners, as well as across the entire discipline; but the possibility for error will always exist. Recent studies have demonstrated that while examiners may reach accurate and reliable conclusions, the calculated error rates in those studies are specific to the testing conditions of the studies and may not include all the quality assurance measures of a laboratory or consider other variables inherent to fingerprint examinations.

Three main limitations associated with the reporting of fingerprint opinion conclusions include making identifications to the exclusion of all other sources, providing an absolute or numerical certainty, and stating that the error rate is zero. This presentation will discuss how these concepts are not supported by research and why they should not be used to express conclusions. Instead, examiners must clearly explain the scientific basis for their conclusions while remaining cognizant of the associated limitations.

Fingerprint, Error, Evidence