A36   Errors in Forensic Science: What Does It All Mean?

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After attending this presentation, attendees will be able to: (1) to define "error" in the forensic science context; (2) recognize and classify the types of errors made in forensic work; (3) understand and describe the roles of bias in forensic science; and, (4) describe how forensic scientists deal with the concept of individualization in the analysis of forensic evidence.

This presentation will impact the forensic science community by shedding light on the types of errors that are made in forensic analysis, how they can be mitigated, and what role bias plays in the propagation of errors.

In *Daubert v. Merrill Dow*, The United States Supreme Court listed several factors that a judge could consider in determining if proffered scientific evidence was scientifically valid. Among these is the "known or potential error rate." The *Daubert* decision didn't contain a definition of "error rate" or even "error." In the past two decades, The Innocence Project(s) have exonerated more than 200 persons who were falsely convicted of serious crimes. Attorneys for the Innocence Project have asserted that many of these false convictions occurred because of errors made by forensic scientists. They describe some of these types of errors and their definitions raise some issues about the nature of such alleged errors. The National Academy of Sciences released a report in 2009 about the state of forensic science in the U.S. The report contains references to errors being made in crime laboratories and how they may be minimized in the future.

These developments raise a number of questions concerning error:

1.   First and foremost, what is error in forensic science? Is there more than one type of error?
2.   What is "error rate"? How is this measured? Is there an error rate for each individual test? For a whole scheme? Once error rate has been measured, how should it be used in framing conclusions and in court testimony?
3.   How does bias affect error in forensic analysis?
4.   If conclusions of individuality in the association of evidence lack scientific validity and are in need of scientific data, what do forensic scientists and courts do until the needed data is developed?

In the absence of probabilistic conclusions of associations of evidence, forensic scientists use terms such as "similar to," "consistent with," "match," and "could not eliminate as the source of." The most contentious association is "came from" which denotes "individualization." It is not known what these terms mean, how often they are erroneous, or how to get at the answers.

This panel discussion will explore: (1) the nature of errors in forensic science; (2) how to properly define, describe and measure them; and, (3) how this might lead to the reduction of errors in forensic analysis. A panel of experts in errors and error measurement will be invited to discuss these issues. It is expected that this panel will attract an audience from across the spectrum of AAFS sections.

Errors, Bias, Comparison of Evidence