F14 Protecting the Innocent: When and Under What Circumstances Should Source-Level DNA Evidence Be Admitted in Cases Where the Relevant Issue Is "Activity" Rather Than "Source"?

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Learning Overview: After attending this presentation, attendees will appreciate the significant need for further research into the presentation of "source-" and "activity-" level DNA evidence and whether additional safeguards are necessary to ensure that the information is not misconstrued by jurors, judges, or litigants. This presentation will also encourage researchers with technical expertise and resources to study whether existing procedural safeguards are sufficient to protect innocent defendants faced with incriminating DNA evidence.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by bringing awareness to practitioners about the potential for testimony and statistical statements regarding source-level DNA evidence to be misconstrued. This presentation will also explore whether existing procedural safeguards, such as cross-examination and evidentiary rules, are sufficient to protect innocent defendants when the prosecution presents incriminating DNA evidence.

Current DNA testing kits are incredibly sensitive. There is now a substantial risk that an innocent person's DNA will be detected in a crime-scene stain. As a result, the relevant question in many cases with DNA evidence is not whether the defendant is the source of DNA in a crime scene stain, but how did the defendant's DNA come to be where it was found.

The risk of wrongful convictions in cases where the relevant question relates to "activity" rather than "source" is compounded by two additional factors. First, fact finders frequently misinterpret forensic statistical evidence. For example, mock juror studies have found that laypersons tend to "transpose the conditional" when the weight of an association is presented as a likelihood ratio. Second, presenting statistical evidence that strongly associates the defendant with DNA in a crime scene stain creates a real risk that fact finders will improperly carry over the source-level statistic to higher-level propositions, like activity or offense.

Preventing wrongful convictions when the relevant question surrounding DNA evidence is "activity" rather than "source" presents significant challenges to everyone in the criminal justice system. This presentation will discuss the Farah Jama case as one example of how such challenges arise. It will also explore how analyses of wrongful convictions and mock juror studies can help us rise to meet these challenges. A robust body of innocence research has identified misleading and/or overstated forensic testimony as a major contributor to wrongful convictions. The ability of existing procedural safeguards to protect innocent defendants faced with incriminating forensic evidence is less understood.

Mock juror studies provide a useful method to assess the impact of procedural safeguards in a criminal trial. Future research should include mock juror studies with fact scenarios involving the following three constants. First, ground truth in each scenario must be actual innocence. Second, the evidence presented to mock jurors must include a strong statistical association between the defendant and DNA in a crime scene stain. Third, the relevant issue must involve activity rather than source. Such scenarios can be derived from real-world cases or from laboratory studies involving secondary transfer and/or contamination.

Judges are frequently called upon to assess the potential for prejudice created by the prosecution's introduction of forensic testimony, including DNA evidence. Such decisions are far too often based on anecdote and intuition rather than data. The materials discussed in this presentation will provide empirical guidance to practitioners and decision makers in cases where the relevant issue is activity rather than source. It will also provide direction for future research that can be readily applied to cases where the prosecution offers source-level DNA evidence against the accused.

DNA, Activity, Source

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