E4 Science Approach to Applications of Bloodstain Pattern Evidence With Special Regard to *Daubert* Qualification

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After attending this presentation, attendees will learn how bloodstain pattern evidence may be used with suggestions for *Daubert* error rate qualification, notes for trial preparation, and ideas for effective use of experts in this very probative discipline.

This presentation will impact the forensic community by providing knowledge regarding the nature and application of bloodstain pattern evidence within the adjudication process.

At the 2008 Washington, D.C. meeting of the AAFS, a multi- disciplinary panel discussion was presented by a group of experts who discussed the qualifications for pattern match types of evidence within *Daubert* requirements. Although the primary focus of that session was fingerprints, at least one panelist suggested that bloodstain pattern evidence was also a subject of concern under the topic. Such association leads to a need for clarification in the legal handling of this form of physical evidence.

The first consideration emerges from the fact that bloodstain patterns are not similar to fingerprints. Although the evidence is analyzed as "patterns," the dynamics in which blood is distributed is substantially different from those acts which form fingerprints and tool mark evidence. From a true science viewpoint bloodstain pattern evidence is not a pattern match form of evidence, nor is it limited to "blood spatters." The fact that it is often applied and mistakenly accepted as such has lead to considerable misunderstanding in legal application.

The need for special handling in a *Daubert* jurisdiction; however, does require discussion. Establishing an error rate is one area in which bloodstain patterns require attention to details in a manner similar to but also substantially different from pattern match formats. As with any expert testimony the concern for disclosure of errors is offset by reluctance to point out possible weaknesses in testimony to opposite counsel. A suggestion was made at the Washington, DC meeting to supply a list of sources of error for the court approval, while also supplying representative counsel with explanations how each possible error was recognized during the analysis being qualified. This paper will attempt to illustrate how possible errors may be acknowledged while not discrediting a competent analysis.

Further benefit to the applications of bloodstain pattern evidence in violent crime adjudication is the rationale for using expert witnesses. Too often the defense assumes that there is only one possible approach, and the prosecution will cover it. Benefits to the defense exist in convincing a client to accept a negotiated plea, gaining reduced charges, or proving the client not guilty as charged. It is often possible for a defense expert to aid counsel in examining the state's experts even if testimony from an additional expert is not required.

This very probative form of evidence benefits the judicial community and should be understood separately from "trace evidence" or "police work." This paper will focus on the specific objective applications available with bloodstain pattern evidence rather than the simple approach to "bloodspatter analysis."

Bloodstain Pattern Evidence, Bloodstain Pattern Expertise, Trial Preparation