B97   The Associative Value of Latent Print Correspondences That Are Insufficient for Identification

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Learning Overview: After attending this presentation, attendees will understand that there are many latent prints that have high associative value but lack sufficient value for identification.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing new insight into the possibilities of exploiting latent prints that are currently set aside as "of no value for identification."

Currently, those latent prints that experts judge to be insufficient for identification are not used as associative evidence. How often do such prints occur? What is their potential value for association? Would they impact case investigations or prosecutions in a useful way?

Latent prints, previously determined to be of no value for identification (NVID Latents) were collected from six principal donor laboratories. A total of 1715 photographs and latent lift images were collected from 1026 cases representing 823 property crimes (19.8%) and 203 violent crimes (80.2%). Administrative screening and cropping of these images resulted in 1408 latent prints from 805 cases. To address variability in NVID decisions among laboratories and examiners, and ensure that the prints met program requirements, each latent print was re-examined by a single, highly qualified, certified latent fingerprint examiner (Pat Wertheim). Program requirements were latent prints with discernable Level 2 ridge detail and 3 or more Level 2 ridge characteristics, but without sufficient ridge detail for identification. These requirements were met by 974 NVID latent prints representing 595 cases.

Measurements of associative value were made using an expected score-based likelihood ratio (ESLR). Auto-encoding of minutiae was performed using a SAGEM-Morpho Light-Out system in version 10. Similarity scores were computed using a Morpho DMA equipped with a matcher in version 9, based on minutiae meeting a quality level of 11 or above (using a scale from 2 to 14 as defined by the Light-Out minutiae detector).

A total of 661 NVID Latent prints showed a Log_{10} ESLR values between 2 and 10.9, with a mean of 5.7 (a likelihood ratio expected from a frequency of occurrence of about 1 in 500,000).

The actual usefulness of these prints depends on the case context. Work is continuing with investigators, prosecutors and crime laboratories to study prints found in well-defined case contexts. This approach is designed to answer whether, how often and to what degree associations from these latent prints could answer questions of relevance within specific case contexts.

Fingerprints, No Value For identification, Associative Value