EXPECT THE UNEXPECTED!

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The clear objective for every forensic analysis in the laboratory is to provide objective, neutral and unbiased data, results and interpretation. This is of course impossible.

The goal of the analyst is to process evidence, choose appropriate methods and procedures in order to provide unambiguous data that accurately reflects the underlying physical contacts and actions that prompted the forensic investigation in the first place. This is of course impossible.

What is possible is to devise an experimental testing approach to try and overcome our natural, inherent cognitive biases that lead to inaccurate and unsupported conclusions. These all too human issues are exacerbated by the descriptions and comments from first responders, investigators, alleged victims, prosecutors and defense attorneys all of whom aid in the development of expectations from the analysis of forensic evidence.

Here we describe two case examples where expectations (i.e., preconceived and unsupported beliefs) can be controlled (at least partially) by devising testing protocols based on actual obtained data in contrast to the expectations of investigators and attorneys.

Example 1: Women's blouse where assailant allegedly urinated. A thorough description of the (supposed) area where urine from the assailant was provided. The item was screened under ALS and six locations were sampled including a mix of areas with no fluorescence and or visible stains and areas with fluorescence and no visible stains. Results: Only samplings from the area with visible stain and no fluorescence tested positive for urine using the RSID™-Urine: nowhere near the described location.

Example 2: Leggings with visible stains, described as semen. The item was screened under ALS and areas with visible stains and fluorescence tested negative for human semenogelin (RSID™-Semen). Substrate control regions with no visible stains or fluorescence were positive for human semenogelin and produced a full, mixed DNA-STR profile.

Conclusions: (i) Contrast between expectations and experimental results was considerable and was resolved by testing multiple areas of the items without regard to provided assumptions. (ii) The use of substrate controls (a topic covered in previous abstracts) and ALS should be used in combination to better screen evidence. (iii) The DNA-STR data supported the reliability of RSID™-Semen and (iv) regardless of expectations, the data trail should be followed.