IMPROVING THE EFFICIENCY OF SEXUAL ASSAULT KIT PROCESSING BY EVALUATING THE PREDICTIVE VALUE OF ACID PHOSPHATASE AND PROSTATE SPECIFIC ANTIGEN TESTING OVER TIME IN CASES OF SEXUAL ASSAULT

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Presumptive serological testing for acid phosphatase (AP) and prostate specific antigen (P30) are typically the first steps in the general processing scheme of Sexual Assault Evidence Collection Kits (SAEK) obtained from female victims. Presumptive test results assist analysts in selecting samples from the SAEK that may be best suited for DNA testing. Evaluating the correlation between presumptive seminal fluid test results with the presence of male DNA over time may help determine the true predictive value of these tests. Additionally, the time elapsed between the alleged assault and kit collection may be assessed to determine a point after which it is no longer probative to test for AP and P30. This study seeks to present time frames where conducting AP and P30 tests on oral, anal, vaginal, cervical, and external genitalia swabs is probative based on a thorough review of forensic cases examined at the Colorado Bureau of Investigation. Using these findings, the processing of SAEKs may be streamlined by eliminating time spent conducting presumptive tests on samples where the time elapsed between the alleged assault and kit collection exceeds these time frames. This would improve the efficiency of SAEK testing without an overhaul of the current processing scheme in the laboratory. Results of this study demonstrate a stronger correlation between AP and male DNA detected using the Quantifiler® Trio DNA Quantification Kit than P30 and male DNA. Furthermore, preliminary findings indicate that presumptive seminal fluid test results may need to be interpreted more cautiously based on the lack of significant correlation between these results and the presence of male DNA.