



E101 Time Between Sexual Assault and Evidence Collection: Implications for the Development of Combined DNA Index System (CODIS) -Eligible DNA Profiles

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Learning Overview: After attending this presentation, attendees will understand new research findings supporting that although the length of time between sexual assault and evidence collection can be five to six days post-assault, a CODIS-eligible Short Tandem Repeat (STR) DNA profile can still be developed.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing victims, law enforcement, health care providers, forensic scientists, and the public with increased knowledge about the length of time in which victims can receive a Sexual Assault Forensic Examination (SAFE) to obtain an STR DNA profile of their perpetrator.

The methodology of the study is an exploratory, retrospective design of over 2,700 submitted and analyzed sexual assault kits from a Mountain West state in the United States. Findings will be compared to other research on time between sexual assault and evidence collection in the development of CODIS-eligible STR DNA profiles. Review of the current literature on time between assault and evidence collection indicate male DNA (Y-STR DNA) can be recovered up to seven days post-coitus from a cervico-vaginal swab and a Y-STR profile can be developed at eight loci.¹ In another study evaluating sexual assault cases, researchers found the longest time between the sexual assault and evidence collection that was positive for sperm was 169 hours (seven days).² Additional research supports possibly extending beyond the seven-day interval for DNA findings. Ballantyne and Speck discovered Y-STR DNA ten days post-coitus in a monogamous couple, demonstrating the longevity of male DNA in the cervix and vagina.³

In this large-scale, retrospective study of 2,727 sexual assault kits, probative STR DNA CODIS-eligible profiles were developed in 39% of analyzed kits. Generalized Estimating Equation (GEE) logistic regression analysis found that for every 24 hours that passed between assault and sexual assault forensic examination, there was a 10% reduction in the development of a CODIS-eligible DNA profile. The longest length of time between assault and forensic examination and development of a CODIS-eligible profile in the study was 122.5 hours, over five days from vaginal and cervical swabs. This finding supports the testing of DNA samples collected five to six days post-sexual assault due to the possibility of developing a CODIS-eligible profile.

This retrospective study is impactful due to the large sample size. The 2,727 sexual assault kits in this study are representative of sexual assault kits and findings in practice. The advancements of DNA testing paired with the research findings acquired from this study disprove the myth associated with delayed reporting and aid in educating victims, health care providers, law enforcement, forensic scientists and the public to extend evidence collection to over five days. In this study, full STR DNA probative profiles were developed from vaginal and cervical swabs obtained 122.5 hours after sexual assault.

Reference(s):

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3. Speck P., Ballantyne J. Post-coital DNA recovery study. *National Criminal Justice Reference Service.* Aug 2004. xiii-xiv. <https://www.ncjrs.gov>.

DNA, Sexual Assault, Evidence Collection