



E54 Collaborative Retrospective Research Study Exploring STR and Y-STR DNA on 1,000 Rape Victims: Implications on Practice

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After attending this presentation, attendees will understand the findings from a collaborative retrospective research study on 1,000 rape victims linking data from the sexual assault nurse examiners' forms with data from the state crime laboratory, specifically exploring the findings related to Short Tandem Repeat (STR) and Y-chromosomal Short Tandem Repeat (Y-STR) DNA analysis results.

This presentation will impact the forensic science community by increasing competency for both forensic nurses and scientists on DNA evidence collection and analyses guidelines by presenting the findings from a collaborative, retrospective research study of 1,000 rape victims. It is imperative that these professions work together to establish best practices guidelines for evidence collection in sexual assault cases. The importance of collaboration is reinforced through this retrospective study examining variables affecting positive STR and Y-STR DNA analyses.

Study Proposition: Improvements in DNA analysis methods in sexual assault cases, including Y-STR DNA analysis, have practice implications for forensic nurses and scientists that may be gleaned through a collaborative retrospective study.

Description of Study and Statement of the Methods: The impetus for this research was to explore the impact of enhanced DNA analysis methods, including Y-STR analysis, on crime laboratory findings in sexual assault cases. Implications on evidence collection guidelines in sexual assault cases are also examined in relation to the findings from this study. Practice changes for both forensic nurses and scientists that have occurred due to the findings from this study will be explained.

The setting for the study is a Mountain West urban community in the United States. For each case in the study, 203 variables from the **Sexual Assault Nurse Examiner's** (SANE's) sexual assault examination forms and crime laboratory analysis findings were identified and coded in **Statistical Package for the Social Sciences** (SPSS) statistical software program: 149 variables from the sexual assault examination form and 54 variables from the crime laboratory data on sexual assault kits were returned for analysis.

Summary of the Results: Data analysis is not fully completed, but includes the following points: (1) the percentage of collected sexual assault kits returned by law enforcement to the state crime laboratory for analysis. Preliminary data analysis has found a sexual assault kit return rate of 29.2%; (2) the percentage of returned sexual assault kits to state crime laboratory that underwent DNA analysis. Preliminary data analysis has found 44% of returned sexual assault kits had DNA analysis, with the remaining analyses stopping after serology; (3) descriptive statistics on patients' demographics, suspects' demographics, and relationship of patient to suspect; (4) descriptive statistics on STR and Y-STR DNA analysis findings; and, (5) logistic regression on the following variables — length of time between rape and evidence collection and if patient bathed or showered — on positive DNA profile identification.

Additionally, unusual cases with positive DNA profile identification will be reported as these cases reinforce the importance of expanding DNA evidence collection in sexual assault cases outside of 72 hours between rape and evidence collection.

Implications on Practice/Conclusion: Results from this collaborative study have changed practice guidelines for both forensic nurses and scientists. Preliminary findings from this study have led to the following practice changes: (1) recommended time frame between rape and evidence collection has expanded to five days; (2) biological evidence swabs from body sites other than genital swabs are recommended for collection regardless of whether the patient has bathed or showered; (3) biological evidence swabs from body sites touched by the suspect, in cases of an unknown assailant, are recommended for collection; (4) DNA analysis to be completed on most submitted sexual assault kits prior to serology testing; and, (5) state crime laboratory tracking of all sexual assault kits to determine percentage of kits returned by law enforcement for analysis.

Collaboration, Rape, DNA