B129 Persistence of DNA: A Case File Review

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The goal of this presentation is to educate attendees on how long semen and DNA persist on casework samples collected during a sexual assault exam from or using actual casework data.

This presentation will impact the forensic science community by increasing awareness of how long semen can persist on samples collected during a Sexual Assault Nurse Exam (SANE) and the impact of time on the ability to recover DNA using standard DNA techniques that are currently utilized at the United States Army Criminal Investigation Laboratory (USACIL).

During the investigation of an alleged sexual offense, the timely recovery of physical evidence is crucial; however, for a variety of reasons, a victim of sexual assault may not report the alleged incident immediately. It is in these extended intervals between the alleged offense and reporting (i.e., the post-assault interval) that key decisions must be made by investigators and laboratory examiners regarding if any physical evidence may still exist and how that evidence can best be recovered and subsequently tested. Identifying semen and obtaining a DNA profile are not synonymous. The identification of semen can be of great importance in establishing sexual contact between an alleged victim and subject. It is the recovery of semen from the female victim that is frequently the focus of the investigative decision-making efforts. Though there is literature on the subject of semen and DNA persistence in the vagina and cervix, the sensitivity and availability of the techniques used to detect semen and DNA vary from laboratory to laboratory. In an effort to give more accurate guidelines to SANEs who collect the evidence and to federal agents who submit evidence to the USACIL, past case files were reviewed in order to determine a realistic time frame in which semen and DNA can be recovered.

A search of the USACIL DNA casework files from 2012 to 2014 from all branches of the military was performed in order to determine the time frame of obtaining serology results and DNA profiles from post-coital swabs taken from casework samples. In addition, this review also included the amount of DNA obtained from different types of body swabs in relation to the post-assault activity and interval, a tally of the number of sexual assault submissions without a Sexual Assault Evidence Collection Kit (SAECK), and the reason such a kit was not obtained.

In conjunction with the review of the USACIL cases, a review of United States Air Force (USAF) cases was also performed. This review focused on sexual assault cases reported to and investigated by the Air Force Office of Special Investigations (AFOSI) during calendar year 2013. The AFOSI review focused on the following contextual data: (1) the average time between the alleged assault and obtaining a SAECK; (2) the number of cases where no SAECK was obtained and why; (3) the number of cases where a SAECK was collected and submitted to the USACIL for analysis; (4) the number of cases where a SAECK was collected but not submitted to the USACIL for analysis and why; (5) the number cases where a SAECK was submitted to the USACIL but not processed and why; and, (6) the outcome of the cases. The time between alleged incident and collection, serology and DNA results for body cavity swabs, the number of sexual assault cases submitted without a kit, and the reason that a kit wasn't collected was recorded and tallied.

The data collected is important for providing a sound basis for guidelines used by the laboratory and the USAF regarding the submission and testing of SAECKs that are collected in the field.

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Semen, Persistence, DNA