Verification of intimate and non-intimate recovery of DNA within Sexual Assault Referral Centres (SARCs)

Determining whether a suitable process to demonstrate the recovery of intimate and non-intimate suspect body fluids from victims is fit for purpose.

Key details

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Police region	North West
Collaboration and partnership	• Cellmark Forensic Services • Forensic Information Database Service
Level of research	PhD
Project start date	July 2024

Research context

This project explored the verification of DNA recovery processes undertaken in forensic medical examination facilities within Sexual Assault Referral Centres (SARCs) across England and Wales in the investigation of rape and sexual assault. This is in support of a national initiative for SARCs to provide additional quality assurances regarding forensic integrity. This is achieved through compliance with the Forensic Science Regulator (FSR) code of practice, including accreditation to ISO 15189 Medical Laboratories: Requirements for Quality and Competence.

Existing national Faculty of Forensic & Legal Medicine (FFLM) recommended intimate and non-intimate DNA recovery processes were verified by five SARCs in a pilot study using both in vivo and in vitro testing. Three types of recovery scenarios were tested:

- non-intimate recovery of touch DNA was undertaken from volunteers' skin following simulated struggles
- non-intimate recovery of blood, semen and saliva on simulated skin surfaces
- intimate recovery of known semen and saliva donors from gynaecological anatomical models

No contamination issues were observed in the non-intimate sample recovery exercises where the recovery technique is the same for live casework. However, with a minority of the intimate sample recoveries, some iatrogenic transfer of seeded DNA within the models was identified. Root cause analysis of the data led to the development of a new approach for training and known outcome competence assessment in intimate DNA recovery using gynaecological models seeded with invisible UV dyes to detect unintended transfer events. This verification exercise has led to the creation of the first SARC proficiency testing scheme.

Research methodology

Three SARCs participated in the first phase of this pilot in which both non-intimate touch DNA and biological fluids were recovered from non-intimate surfaces, plus intimate swabbing from the vagina and anus areas of anatomical models were undertaken. Lessons learned from this work were then applied to an updated exercise undertaken by a fourth and fifth SARC in phase two with the additional aim of assessing whether it is feasible for SARCs to conduct verification independently using remotely provided processes and test materials. 13 forensic healthcare practitioners (FHPs) participated in total, with either two or three representatives per SARC.

In all instances different mocked up casework scenarios were presented to the FHPs as part of an end-to-end process verification exercise. Within this context both non-intimate and intimate recovery of DNA samples were required.

Summary of findings

This project was completed in March 2025.

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