Experimental evaluation of the impact of reduced anticontamination measures on the integrity of items sampled within mock crime scenes

An investigation into the risk of DNA contamination in crime scenes.

Key details

Lead institution	University of Lancashire
Principal researcher(s)	Michelle Gaskell michelle.gaskell@dorset.pnn.police.uk
Police region	North West
Collaboration and partnership	• National Police Chiefs' Council • Forensic Capability Network • East Midlands Special Operations Unit Forensic Services • Lancashire Constabulary
Level of research	PhD
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Research context

Crime scene investigators (CSIs) in the UK conduct extensive anticontamination measures to mitigate the risk of introducing extraneous DNA into forensic evidence. This study empirically evaluated the effectiveness and proportionality of such measures, focusing on equipment cleaning and glove-changing practices during evidence recovery in mock crime scenes. The experimental design deliberately introduced contamination risks, such as the use of contaminated equipment, transport containers and gloves and included both standard and streamlined (reduced glove

changes/cleaning) procedures.

Six CSIs from two police forces recovered 24 biological samples (semen, blood, saliva and touch DNA) from two mock scenes. Critically, no extraneous DNA profiles were detected in any evidential samples, even under deliberately compromised conditions or when streamlined practices halved the time required for recovery. These findings indicate that many current anticontamination measures exceed what is necessary to protect evidential integrity. The results support a more proportionate, risk-based approach, suggesting that UK police forces could safely reduce certain anticontamination practices without compromising the quality of forensic evidence. Further research in real-world settings is recommended to confirm these conclusions and guide policy.

Research methodology

Concerns about the impact of statutory regulation on the delivery of effective and efficient crime scene examination were raised with the Forensic Science Regulator (FSR) and through Home Office ministers in the UK. Following an investigation which included a national survey and engagement with police forces, the FSR published a report which highlighted that most police organisations disagreed (75%) or strongly disagreed (17%) with the statement: the volume of work and impact of the accreditation process is proportionate to the risk of error or quality failure.

In response the Forensic Capability Network (FCN) coordinated an investigation into the proportionality of anticontamination measures conducted by forces in relation to the risk of contamination to the forensic evidence recovered in crime scene investigations. This study is a component of this national initiative. The aim of this study was to assess the practical value of current anticontamination measures for reducing the risk of evidential samples becoming compromised during scene investigation. This was approached by both reducing the anticontamination measures taken, and by deliberately introducing contamination of items and surfaces encountered during evidence recovery from mock crime scenes. The recovered samples were then assessed for any impact of contamination from the scene or the practitioner during the recovery process.

Two experimental approaches were undertaken:

- impact of relocating photographic scales during an investigation

- impact of taking reduced anticontamination measures and exposure to increased contamination levels within the evidential recovery process

A national survey was also sent out to CSIs across the UK to gather data on their individual experiences to support understanding of the likelihood of certain scenarios occurring during a crime scene examination that may be considered a risk of contamination to forensic evidence.

Summary of findings

This project was completed in March 2026.

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