REAL TIME DNA-ANALYSIS AT THE CRIME SCENE FROM THE PERSPECTIVE OF THE SCENE OF CRIME OFFICER

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It is anticipated that fast and mobile technologies for real time DNA analysis on the crime scene will come available in the very near future.

The decision making process on the actual introduction of mobile DNA technologies in criminal investigations is among others dependent on the performance characteristics of the existing DNA analysis technology. An important performance characteristic of any forensic analysis system is the actual turnaround time. We have assessed the DNA analysis turnaround time by evaluating the criminal files from 66 serious and 179 high volume-crime cases in one of the police regions in the Netherlands. The results of this evaluation shows an average DNA analysis turnaround time of 66 days for traces from serious crimes and 44 days for traces from high volume-crimes. Our data also show that a relatively large amount of crime scene DNA-samples that have been secured and submitted for DNA analysis fail to produce informative DNA-profiling data. 38% of the samples from serious crimes and 17% of the samples from high volume crime cases generated non-informative typing results.

It is our expectation that future application of mobile technologies that enable fast quantification of DNA at the scene will encourage crime scene workers to continue their efforts in localizing and securing additional stains that have a more promising potential. This also relieves the DNA-profiling process from putting effort in analyzing samples that contain insufficient DNA.

We therefore expect that the introduction of mobile DNA quantification technologies at the crime scene will lead to a rise in the number of informative DNA profiles that can be obtained from the crime stains. The criminal justice system can subsequently expect a rise in the number of cases where a suspect can be identified through a DNA (database) match.

Before the actual implementation of mobile DNA technologies it is important to understand how this technology can be integrated in the work of the crime scene officer. Therefore we performed an observation study in a mock crime scene. The scene of crime officers in the experimental group (n=20) had the opportunity to make use of fast DNA-analysis, whereas the scene of crime officers in the control group (n=20) performed their research under normal conditions.

The results of this study are presented in the context of the main aim of this study: to create a comprehensive platform that allows for the introduction of mobile DNA-technologies within the criminal justice system.