BSc title: The Ease of Contamination from Talking at a Scene of Crime

Abstract

Developments in forensic genetic profiling mean that only very little DNA is required to generate an identifying profile. However, as this sensitivity increases so does the potential risk of contamination with non-offender DNA, potentially leading to the conviction of innocents, or release of the guilty.

Little work has been done on just how much activity is needed to produce this contamination. My work will aim to find the length of time necessary to contaminate a scene of crime by talking alone.

Initially, three methods of DNA extraction (Chelex®, Pk/SDS digestion and QIAamp mini kit®) were compared as well as two possible pre-SGM Plus® screening methods. The extraction method most sensitive for my work was shown to be the QIAamp mini kit, and no reliable screening method could be identified.

To simulate a scene of crime, sheets of Benchkote® were used to represent an area of interest and an unprotected subject talked over them for a variety of times, in a variety of positions (standing, keeling and sitting at a desk). The results were analysed by using SGM Plus® PCR and an ABI PRISM® 377 DNA to generate a profile.

Results show contamination by talking in both kneeling and sitting positions occurred almost immediately (<30 seconds, but not from just one sentence) up to 69cm from the subject. When standing, contamination could be observed after 15 minutes of talking, up to 92cm from the subject. Possible explanations for these results are given, as well as their significance on the necessity of officers wearing masks and determining a suspect’s actions.

Key Words: Forensic, contamination, DNA, scene of crime