SERIES SEXUAL CRIMES IDENTIFIED BY A DNA COMPUTERISED DATABASE

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INTRODUCTION

The Metropolitan Police Forensic Science Laboratory has been recording DNA profiles on a computerised database since January 1990. This index contains profiles from personal samples and from unsolved cases where body fluid stains are thought to originate from the offender. At present there are approximately 2800 records from persons and 230 from unsolved cases - over 90% of the stains are semen from sexual assaults, the remainder include 12 bloodstains, mainly from murders, one saliva stain and one hair sample which the victim pulled from the offender.

When a profile is added to the database it is automatically compared against all existing records and any matches found are listed on a printout.

To date the index has made the first identification of series crime in five instances and added one case to each of three other series already known to the police. Additionally seven persons have been nominated for cases, three of whom were known serial offenders.

IDENTIFYING SERIES CRIME

The various police intelligence agencies and the Laboratory's own Sexual Assault Index record and compare modus operandi (MO) in order to identify and solve series crime. Unless an offender's behaviour is particularly unusual, such comparisons are generally limited to the local area. The DNA index is most successful in identifying links where the offender's behaviour is not distinctive, where behaviour changes between offences or where cases are separated by distance or time. The cases identified by our DNA index illustrate this:

1. One series where the first two offences, although similar in method, were two years apart.
2. One series where distance and behaviour separated cases.
3. Two series where the offender moved to another area and his MO was not distinctive enough to aid recognition of the case as part of the series.
4. Three series where the offender assaulted a completely different type of victim.
5. One series where one of the four cases lacked the particular idiosyncracy used to identify the offender.

Advances in Forensic Haemogenetics 4
Edited by Ch. Rittner and P. M. Schneider

However the present lengthy technique of DNA profiling, together with heavy caseloads and hence backlogs, results in retrospective links, usually two to three months after the offence and sometimes as much as six months later.

The unequivocal identification of linked crimes by DNA profiling enables a study of the offender to be made. Details from several cases can be systematically analysed to build up a set of behavioural and physical characteristics which can be used to screen suspects and other potentially linked cases. This can act as a preliminary to producing a detailed "offender profile".

A CASE EXAMPLE

This series was first identified when a profile from a rape in 1989 was added to the DNA database. A match was found with another rape which had occurred almost two years previously. The two crimes were in the same locality and had a similar MO.

The police nominated several other cases which had similarities. DNA profiles were obtained from some of the cases,eliminating them from this series. However one proved to be part of a second series in the same area, as yet unresolved. Several suspects were also screened but no matches found and so the investigation was closed.

Eighteen months later the police recognised a third rape in the same area as being very similar in method to the first two cases. DNA profiling confirmed the link. A fourth case followed within three months. Later one robbery/indecent assault was thought to be by the same man, but lacked any DNA or other evidence for confirmation.

The crimes characteristically occurred late at night or early in the morning and all included theft of cash and/or jewellery. The offender was hooded or masked in three cases and had anal and/or vaginal intercourse from the rear in three cases.

This time the police decided to screen systematically all potential suspects in the local area. A study of the statements given by the four rape victims, together with the case circumstances, enabled an outline "offender profile" to be produced. This consisted of a weighted list of physical and behavioural characteristics to prioritise the suspects.

The close proximity of the offences suggested that the offender was a local man and most probably lived in the area central to the offences. Theft of valuables before the sexual assault in each of the cases suggested that he may have been a petty thief. He had an impersonal manner and his approach appeared to be criminally orientated rather than sexually orientated.

Such characteristics were rated by a points scheme, as shown below:

A.	Age 18-24 years	1 point
B.	Age 25-35 years	2
C.	Height 5'6" or over	2
D.	Previous conviction for theft and violence	3
E.	Previous conviction for theft, no violence	2
F.	Previous conviction for burglary	2
G.	Previous history of indecency	1
H.	Has had a custodial sentence	2
I.	Is unemployed	1
J.	Lives within half a mile of assaults	3
K.	Lives within one mile of assaults	2

The police used the weighted list together with their own intelligence records to nominate and prioritise possible suspects. They concentrated on those known for theft or theft together with sexual assault rather than those who were purely sexual offenders.

Approximately 300 samples were submitted to the Laboratory for screening. Fortunately conventional blood groups (ABO, Secretor and PGM) had been obtained from the seminal stains in the earlier cases, enabling rapid screening and exclusion of 90% of the suspects. The remaining suspects were checked by DNA profiling.

One of the samples submitted was found to match, giving an initial frequency of 1 in 3000 with the first probe (MS1). The full profile eventually provided a more definite identification. The man did fulfil several of the parameters suggested by the behavioural analysis, primarily that his home was central to the attacks and he had previous convictions for theft, burglary and violence but none for sexual assault.

CONCLUSION

The DNA index therefore provided the early recognition of this series. Other cases with similar MO could be unequivocally linked or rejected from the series by the DNA results, previously a rather uncertain issue for the investigator. DNA also allowed indisputable screening of suspects.

Most serial offenders do not travel great distances between their crimes and therefore local DNA indexes such as ours do operate effectively. However national or even international databases are required if we are to detect the serial offenders who are active in areas policed by different forces. The European DNA Profiling Group (EDNAP) has identified that the details of methodology are important for producing comparable results. In the United Kingdom it has been realised that at least two linking single locus probes are necessary for discriminatory results. Inter-laboratory databases can only operate if these are maintained.