

# BioethicsBytes Extended Commentary

## 'Give us your DNA' - Panorama

### Introduction to this resource

Welcome to this *BioethicsBytes Extended Commentary*. These papers are intended to provide all readers - teachers, learners and members of the public alike – with a more in-depth discussion of issues raised by media presentations of developments in biology and biomedicine. They are supplementary to posts on the *BioethicsBytes* website, and elaborate themes identified in the main commentaries.

In general, they deal with one or more particular bioethical issues raised by featured programmes. They focus on quotes, or exchanges, in the source material that illustrate moral concerns or ethical concepts that have application beyond the context of the episode itself. The extended commentaries draw on a wider range of media and academic texts than can be presented on the main website, and, as such, can provide readers with additional resources on specific topics.

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## Introduction to 'Give us your DNA' - Panorama

This extended commentary focuses on the UK's police national DNA database (NDNAD) and the many bioethical issues that surround it. 'Give us your DNA', a *Panorama* documentary (first broadcast on BBC1, Monday 23<sup>rd</sup> September 2007; TRILT identifier 0071158D) presents several cases in which the DNA database has helped prevent and detect crime and examines a proposal to include the entire population on the database. It also exposes the fallibility of the database and questions whether this infringement of people's civil liberties would be justifiable. This commentary looks in greater detail at the current legislative and scientific position and at the ethical issues raised by the generation and use of the NDNAD.

### 1.0 Why choose these legal parameters?

Before embarking on any ethical consideration regarding the police national DNA database, it is helpful to have both a comprehensive knowledge of the current legislation within which it operates (Box 1) and the justification given for this framework. Many of the main legal aspects of the DNA database are discussed in the programme, particularly during a sequence describing procedures in the custodial suite of a police station (02:32 – 04:45).

Since the NDNAD was first implemented in April 1995, the cumulative affect of this legislation has led to a situation in the UK, where if an individual is arrested for any recordable offence then a DNA sample can be taken without consent and will remain on the police database indefinitely. Even if the individual is only arrested, or is convicted but later acquitted, the sample and profile still remain. Further, volunteers who consent to the giving of a DNA sample will have their sample and profile retained on the database for an indefinite period, this consent is irrevocable. In addition children from the age of 10 years can be arrested and therefore have their DNA sample taken and retained on the database for an indefinite period. Neither individual nor parental consent is required to obtain such samples.

There are five main features of this current legislation (as of November 2007) which demand justification for their use, they include;

- The ability of the police to obtain a DNA sample without consent from all those arrested of a recordable offence,
- The indefinite retention of all samples and profiles placed on the database,
- The inclusion of minors within these powers,
- The indefinite retention of volunteer samples,
- Use of DNA samples on the database for research purposes.

#### 1.1 Obtaining and retaining DNA samples and profiles

The first and second of these features are partially justified in an example considered in *Give us your DNA*, presented in segments through the programme (01:20 – 02:50, 04:45 – 06:22, 16:23 – 18:50 and 26:05 – 28:11). A man had previously been arrested and convicted of burglary, after which his DNA was added to the NDNAD. Several years later, another burglary took place where DNA evidence at the crime scene led the police to the same man after a match was found on the database. Upon

examination of his apartment the police found a blood-stained garment. The DNA from the blood matched that of a local woman who had recently gone missing and was feared murdered. When her body was subsequently found in a nearby river, the man was convicted of her murder. This example not only illustrates the power of DNA as evidence but specifically the value of the police's ability to obtain and retain a DNA sample from individual who had committed any recordable offence.

### Box 1: Legislative background

*Please note, the legal parameters apply to England and Wales only*

- The Police and Criminal Evidence Act (PACE) 1984 – classifies 'intimate' and 'non-intimate' bodily samples taken for the purpose of DNA identification. Intimate samples included semen, blood, urine and saliva, these could be obtained from consenting criminal suspects. Non-intimate samples included hair and a sample from the fingernail. Again consent would be required by the criminal suspect, except when a superintendent suspected their involvement in a 'serious recordable' offence.
- The Criminal Justice and Public Order Act (CJPOA) 1994 – enabled the reclassification of saliva from an intimate to a non intimate sample. Further it permitted police to obtain any non-intimate sample from individuals suspected of being involved in 'any recordable' offence without their consent. However if the individual was not convicted they could have their sample and profile removed from the database.
- The Criminal Evidence Act 1997 – allowed the non-intimate samples of those imprisoned for sexual or violent offences and burglary to be taken without consent.
- The Criminal Justice and Public Order Act (CJPOA) 2001 – permitted the permanent retention of samples and profiles of all those 'charged', including those not convicted of a recordable offence. In addition samples provided by consenting volunteers became irrevocable; meaning that once their DNA is on the database it can not be removed.  
<http://www.opsi.gov.uk/acts/acts2001/20010016.htm>
- The Criminal Justice Act 2003 (CJA) – granted police with the ability to obtain and retain a non-intimate sample from all those 'arrested' for a recordable offence without their consent.  
<http://www.opsi.gov.uk/acts/en2003/2003en44.htm>
- Serious Organised Crime and Police Act (SOCPA) 2005 – Section 64 of PACE prevented the NDNAD from being used for any other reason other than for; the prevention and detection of crime, investigation of an offence and the conduct of a prosecution. Consequently it was not lawful to search the NDNAD for identification purposes of those deceased resulting from natural disasters, such as the Asia tsunami in 2004. Therefore an addition was made to SOCPA section 117.7, which permitted the use of the NDNAD for the purpose of identifying the deceased.

A further example, a case study from *The National DNA Database – Annual Report 2005-2006*<sup>1</sup>, is presented. In February 2005, a man was arrested for violent disorder in his home, but was later released without conviction. Nevertheless, his DNA was taken

<sup>1</sup> <http://www.homeoffice.gov.uk/science-research/using-science/dna-database/>, 01/11/07, p 14, Home Office, Science and Research; The national DNA Database annual report 2005/2006

and added to the database. In July of the same year a woman was raped and upon examination of skin cells under the fingernails of the victim, a DNA profile was obtained which matched the man arrested for violent disorder. This again provides strong justification for obtaining and retaining DNA samples from every arrestable offence.

Figures from the report of the *DNA Expansion Programme 2000-2005*<sup>2</sup> suggest that that since the passing of The Criminal Justice and Public Order Act (CJPOA 2001) in May 2001 which permits the retention of samples from all individuals charged but later acquitted, there have been 198,000 individuals DNA samples and profiles retained. As of 31<sup>st</sup> March 2005, 7591 profiles from these individuals have matched with the crime scene samples from 10,754 offences, which have included; 91 aggravated burglaries, 62 sexual offences, 116 rapes, 88 murders and 45 attempted murders.

The cases of two further men (*R v B* and *R v Weir*) were a driving factor in the adoption of the CJPOA. Both men had their DNA added to the database when arrested for earlier crimes. One was later acquitted and the other had no further proceedings against him but, contrary to the legislation at the time, their samples remained on the database. Some while later, the police used DNA from the crime scene of a murder and of a rape and the database matched them to these men. Since conviction of these men would have required an unlawful use of their DNA data they were allowed to walk free.

Additionally, the DNA expansion report provides evidence of the impact of the Criminal Justice Act 2003, which was implemented on 5<sup>th</sup> April 2004. Between that date and the writing of the report (March 2005) DNA taken from 250 individuals were matched to samples taken at the scene of unsolved crimes, including: 4 cases of murder/manslaughter, 4 sexual offences, 3 rapes and 98 burglaries. Without the new powers these crimes may have remained unsolved. Taken in conjunction with the evidence above, it is clear why police are enthusiastic to see an expansion of the use of DNA both to solve past offences and as a deterrent against future crime.

It is important at this point to clarify the terminology used and to note the difference between a DNA sample and a DNA profile. A DNA sample is genetic material, primarily obtained from a buccal (mouth) scrape. Analysis of variation at specific points within the DNA enables the determination of a DNA profile for the individual providing the sample (see Box 2 for more detail). The difference is made clear in two sections of *Give us your DNA* (06:20-07:30 and 22:00-23:38). It is also worth re-emphasising that both the sample and the profile are retained indefinitely. Some people question the need to retain the sample once a profile has been established. The police and the Forensic Science Service (FSS) highlight several reasons why it is important to retain the sample itself, including: the need to upgrade profiles as technology develops further; so that samples can be re-profiled in cases where the

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<sup>2</sup> The DNA Expansion Programme began in April 2000 and provided police forces across England and Wales with £240 million to aid and accelerate the generation of the DNA database <http://www.homeoffice.gov.uk/science-research/using-science/?version=1>, 01/11/07, p 6-7, Home Office, Science and Research; Using Science to fight crime – DNA Expansion Programme Reporting Achievement

individual disputes the findings; for quality assurance purposes; and to facilitate further research into the prevention and detection of crime.

### Box 2: Scientific background

DNA profiling was born out of fundamental scientific research by Professor Alec Jeffreys into genetic variation between individuals in a population (Jeffreys *et al*, 1985a). In the 20 years since 'genetic fingerprinting' was first invented, the technology has continued to develop allowing for profiling of smaller samples and reducing the possibility of false-positive identifications. The method employed in the UK today is called Second Generation Multiplex plus (SGM plus) and the probability of two unrelated individuals having their DNA profiles match is less than one in a billion.

DNA is made up of a long string of four chemical bases, Adenine (A), Thymine (T), Guanine (G) and Cytosine (C). These bases can occur in any order, allowing millions of potential combinations. In certain 'non-coding' regions of the genome (i.e. sections of DNA that do not code for the production of proteins) these bases are often found repeat in a specific order. Some of these repeats are called minisatellites - 'small tandem repeats' or STR markers. The repeat unit is generally between 2 and 6 bases in length, and the total length of the region can be 450 bases. By way of illustration, the following represents nine copies of a four base repeat (AGCT):

AGCTAGCTAGCTAGCTACGTAGCTAGCTAGCTAGCT

The value of STR markers in identification stems from the fact that the exact number of repeats in each minisatellite varies between individuals. Everyone will have a particular STR location but the number of repeat units will vary from one person to another. Family members will share some combinations that they have inherited from a common ancestor, which facilitates the testing of family connections (e.g. in paternity cases). In the UK, the Forensic Science Service (FSS) currently examine the repeat length at ten different STR marker sites in the genome, as well as the gender of the individual (early tests involved fewer markers). When a DNA sample is taken from a suspect by the police it is sent to the FSS and they generate a genetic profile, which is a series of numbers indicating the repeat length at ten STR markers and gender marker for that individual. When a DNA sample is recovered from a crime scene, a profile is produced in the same way and uploaded onto the database. Crime scene profiles and information on suspects can then be cross-matched.

(Jeffreys, A. J. Wilson, V & Thein, S. L. 1985(a). Hypervariable 'minisatellite' regions in human DNA. *Nature*. **316**. 76-79)

<http://www.forensic.gov.uk/>. 01/11/07, Forensic Science Service

<http://www.homeoffice.gov.uk/science-research/using-science/?version=1>, 01/11/07, p 6-7, Home Office, Science and Research; Using Science to fight crime – DNA Expansion Programme Reporting Achievement

## 1.2 Children's samples and profiles

By the end of 2005, profiles for 741,605 individuals who were under 18 at the time of arrest had been included on the DNA database<sup>3</sup>. Of these, approximately 717,000 were charged or cautioned as a result of a crime they committed. Within England and Wales, children aged 10 years and above are deemed to be criminally responsible and therefore, under the legislation passed in 2001 CJPOA and 2003 CJA, it is possible to

<sup>3</sup> <http://www.homeoffice.gov.uk/science-research/using-science/dna-database/>, 01/11/07, p 33, Home Office, Science and Research; The national DNA Database annual report 2005/2006

obtain a DNA sample from them upon arrest and retain it indefinitely. The fact that young offenders are more likely to become repeat offenders or career criminals is given as justification for this state of affairs<sup>4</sup>. Having their DNA on the database will allow future investigations to be concluded promptly and, it is hoped, will act as a deterrent against further involvement in crime. Of the 24,000 Under 18s from whom DNA samples were taken when arrested under the Criminal Justice Act 2003, 500 have been matched to outstanding crime scene sample profiles, including 5 murder/manslaughter cases and 6 rapes<sup>5</sup>.

### 1.3 Volunteered samples and profiles

The National DNA Database annual report 2005/2006 states that there are 16,038 samples on the database from volunteers. The term 'volunteer' incorporates those who offer a sample for elimination purposes in an intelligence-led investigation, victims and third parties. An example of the effectiveness of using volunteer sample in an intelligence-led investigation is presented in *Give us your DNA* (07:30-12:16). On Christmas Eve 1995, a woman was found raped and murdered near her home. DNA evidence was left at the crime scene, but the police had difficulty identifying a suspect. From their initial investigation the police concluded that the criminal had a good knowledge of the local area, and so they launched a 'mass voluntary screen' of 4,500 local men in order to exonerate the innocent. This process of elimination led the police to identify a man who had twice evaded giving a sample, and who was later charged and convicted.

For those volunteering DNA evidence as part of a mass screening, consent occurs on two levels. Initially, they are consenting to their DNA being used in the specific investigation. At the end of that case, they have the potential to have their sample and profile withdrawn. If, however, they consent to the information staying on file then, under the terms of the CJPOA 2001, it will do so indefinitely. It has been reported that of those asked to provide an elimination sample, 40% opt to consent to their DNA being retained on the database<sup>6</sup>. Interestingly, of the 9,329 volunteer samples that were loaded successfully onto the database in August 2004, 210 of these matched crime scene profiles, including; 3 murders, 1 attempted murder, 3 rapes, 2 serious robberies and 1 abduction/kidnapping<sup>7</sup>. There are suspicions that some individuals may not have realised they were consenting to this second aspect.

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<sup>4</sup> Francis, B. Soothill, K and Piquero, A. 2007. Estimation issues and generational changes in modelling criminal career length. *Crime and Delinquency*. **53**, 84 - 105

<sup>5</sup> <http://www.homeoffice.gov.uk/science-research/using-science/dna-database/>, 01/11/07, p 36, Home Office, Science and Research; The national DNA Database annual report 2005/2006

<sup>6</sup> <http://www.nuffieldbioethics.org/go/ourwork/bioinformationuse/introduction>, 01/11/07, p55, The forensic use of bioinformation: ethical issues – Report published September 19<sup>th</sup> 2007

<sup>7</sup> [http://www.homeoffice.gov.uk/documents/NDNAD\\_AR\\_04\\_051.pdf](http://www.homeoffice.gov.uk/documents/NDNAD_AR_04_051.pdf), 01/11/07, p 23 & 37, Home Office, Science and Research; The national DNA Database annual report 2004/2005

## 1.4 Using the NDNAD for research

The PACE legislation permits the use of DNA samples for the detection and prevention of crime. The Board responsible for the use of the NDNAD interpret that this allows for research purposes without specific additional consent, provided that “due account is taken of any independent ethical advice”<sup>8</sup>. This view is not held universally. Despite this, the aims of the research, as reported, can be quite vague. For example, of 17 requests for research use granted in the period up to March 2006<sup>9</sup>, three were listed as “External research requests from universities etc”.

## 1.5 Overview of the effectiveness of the NDNAD

From the information presented above, it is clear that legislation has enabled the national DNA database to become an immensely powerful tool in the prevention and detection of crime. It is, however, important to put these cases into perspective. In 2004/2005 there were 5,623,263 crimes recorded, of these only 19,873 (0.35% of all crimes) were solved using DNA<sup>10</sup>. Several factors contribute to this limited involvement. DNA is not always found at the crime scene or may be sufficiently degraded to have become useless. The criminal may have been committing their first offence and their information is not on the database. When, however, useable DNA is found at the crime scene it can have a significant effect on clean-up rates, especially on high volume crime such as domestic burglary (see Table 1)<sup>11</sup>.

**Table 1: Role of DNA evidence in solving crime**

Crime Category	Overall detection rate 2004/2005 (detected crime/recorded crime)	DNA detection rate 2004/2005 (DNA detections/cases where DNA scene sample was loaded)
All recorded Crime	26%	40%
Domestic Burglary	16%	41%
Burglary - other than dwelling	11%	50%
Theft of vehicle	15%	24%
Theft from vehicle	8%	63%
Criminal damage	14%	51%

The incremental development and expansion of the NDNAD since its original inception have not gone without comment. Civil liberties groups and others have raised a number of significant objections, these are discussed in Section 2.

<sup>8</sup> [http://www.homeoffice.gov.uk/documents/NDNAD\\_AR\\_04\\_051.pdf](http://www.homeoffice.gov.uk/documents/NDNAD_AR_04_051.pdf), 01/11/07, p 35, Home Office, Science and Research; The national DNA Database annual report 2004/2005

<sup>9</sup> <http://www.homeoffice.gov.uk/documents/DNA-report2005-06.pdf>, 01/11/07, p 43, Home Office, Science and Research; The national DNA Database annual report 2005/2006

<sup>10</sup> <http://www.homeoffice.gov.uk/science-research/using-science/?version=1>, 01/11/07, p 12, Home Office, Science and Research; Using Science to fight crime – DNA Expansion Programme Reporting Achievement

<sup>11</sup> <http://www.homeoffice.gov.uk/science-research/using-science/?version=1>, 01/11/07, p 16, Home Office, Science and Research; Using Science to fight crime – DNA Expansion Programme Reporting Achievement

## 2.0 Ethical considerations regarding the NDNAD

***“It may be that it is the obnoxious thing in its mildest and least repulsive form; but illegitimate and unconstitutional practices get their footing in that way, namely, by silent approaches and slight deviations from legal modes of procedure.”<sup>12</sup>***

Justice Bradley, 1886, *Boyd v. United States*

Despite being more than a century old, the quote from Justice Bradley encapsulates various of the concerns that have arisen regarding the NDNAD. Many are worried that fundamental rights and principles are being eroded. A tension exists between, on the one hand, the potential manifest in the ‘scientification’ of police work<sup>13</sup> and, on the other, fears about the direction in which such technologies have moved, and may continue to move. Has the public been so impressed by the power of DNA to solve crimes, even cases such as the recent conviction of Ronald Castree for the murder of Lesley Molseed over 30 years earlier<sup>14</sup>, that they have been blinded to the wider societal consequences of the use of such material? Are we on a trajectory towards the inevitable expansion of the NDNAD to include information on the entire population (*Give us your DNA*, 07:20)? The current debate will have a significant effect on this process.

***“Too many people have been sleepwalking into a situation which will be undermining fundamental civil liberties in England and Wales”***

Jeremy Purvis, MSP Liberal Democrats (*Give us your DNA*, 12:30-14:00)

It is claimed that the DNA database serves the public’s best interest, but at what cost? Has an appropriate balance been found between the common good and personal individual liberty? To what extent should a people’s autonomy and privacy be sacrificed in order to maintain social order?

Answers to such questions will be influenced by broader ethical positions. For example, a utilitarian would seek to bring the greatest benefit to the greatest number of people, and hence will place emphasis on the common good. They might, therefore, favour incorporation of the entire population onto the database, to ensure the maximum value of DNA as an investigative tool and as a means to protect the public from criminal activity. However it is not always possible to view the common good in isolation, since one of its strongest facets is the freedom of the individual that contributes to it. The many rights underwritten in the Human Rights Act of 1998<sup>15</sup> include; liberty, privacy and autonomy. A right-based approach would suggest that these rights for the individual may be as important as the rights of a society as a

<sup>12</sup> Quoted by Rothstein, M. A. & Talbot, M. K. 2006. The expanding use of DNA in Law Enforcement. *Journal of Law, Medicine and Ethics*. **34**:153-164

<sup>13</sup> Williams, R. & Johnson, P. 2004. ‘Wonderment and dread’, representations of DNA in ethical disputes about forensic DNA databases, *New Genetics and Society* **23**:205-223

<sup>14</sup> Killer walked free for 30 years <http://news.bbc.co.uk/1/hi/england/7084688.stm> 01/12/07

<sup>15</sup> <http://www.opsi.gov.uk/ACTS/acts1998/19980042.htm>. 01/11/07. The Office of Public Sector Information. The Human Rights Act 1998. Article 6 (2)



whole. Infringement of those rights would therefore require significant justification. Does the individual, and society, have an obligation to ensure the most moral action is undertaken, despite consequences for the individual? Is the passing of an extensive legislative framework which may infringe upon civil liberties a proportionate response if it ensures better security within society?

## 2.1 Taking DNA samples and profiles

***“Everyone charged with a criminal offence shall be assumed innocent until proven guilty”***

Article 6 (2) Right to a fair trial; Human Rights Act, 1998

Throughout the history of the English legal system, “the general rule is that the prosecution bear legal burden of proving all elements in the offence necessary to establish guilt”<sup>16</sup>. The ‘presumption of innocence’ placed upon the suspect, has remained the golden thread that runs through all criminal law in the UK; it falls upon the prosecution to prove to the court *beyond reasonable doubt* that the accused was guilty. In this regard, DNA should never be considered adequate and infallible proof in the absence of other corroboration. Alec Jeffreys commented on this issue during a recent BBC Newsnight interview, in which he said, “DNA does not have innocence or guilty written in it - those are legal terms. What it ceases to establish is connections and identifications, so if you just look at it that way it is a very powerful technology”<sup>17</sup>.

Elsewhere, it is argued that the retention in the database of profiles relating to individuals who have not been found guilty, is an unjustified violation of civil rights. Since passing of the Criminal Justice and Public Order Act (CJPOA) in 2001, and the subsequent Criminal Justice Act (CJA) 2003, genetic information on over 200,000 people has been retained despite their acquittal<sup>18</sup>. Furthermore, as of November 2005, 124,347 people who had been arrested but not charged or convicted have also had their DNA taken and stored on the database. Under earlier legislation all of these individuals would have been able to have their records in the NDNAD deleted. Is it legitimate to keep their details on record?

It has been argued that ‘yesterday’s burglar may be today’s rapist’<sup>19</sup> and that a convicted criminal therefore forfeits certain rights. It is, however, a significant further step to argue that the retention of information from innocent people is permissible as outlined above (Section 1.1), ample examples of the benefits of such powers can be found. When, however, more than 95% of the 200,000 taken since the 2001 CJPOA have no connection to reported crimes, a different perspective may be reached.

<sup>16</sup> Hooper, Lord Justice & Omerrod, D. Criminal Practice, 2008. Blackstones. Section F3.5, p 2316. Oxford University Press. New York 2007.

<sup>17</sup> [http://news.bbc.co.uk/player/nol/newsid\\_6990000/newsid\\_6992300/6992370.stm?bw=bb&mp=wm&news=1](http://news.bbc.co.uk/player/nol/newsid_6990000/newsid_6992300/6992370.stm?bw=bb&mp=wm&news=1), September 2007. BBC Newsnight interview with Professor Alec Jeffreys

<sup>18</sup> [http://www.homeoffice.gov.uk/documents/NDNAD\\_AR\\_04\\_051.pdf](http://www.homeoffice.gov.uk/documents/NDNAD_AR_04_051.pdf), 01/11/07, p 32, Home Office, Science and Research; The national DNA Database annual report 2005/2006

<sup>19</sup> Rothstein, M. A. & Talbot, M. K. 2006. The expanding use of DNA in Law Enforcement. *Journal of Law, Medicine and Ethics*. **34**:153-164

There are also concerns about the racial bias within NDNAD records; it has been reported that 40% of all black men and 13% of all Asian men have their DNA profile on the database, compared with only 9% of all white men<sup>20</sup>. This statistic, it may be argued, reveals problems with policing strategies rather than with the NDNAD *per se*. It has, however, served to fuel arguments about 'institutional racism' and 'increased social exclusion'. In keeping with the response to other criticisms of imbalance, the recommended solution from legislators is not the removal of some records, but rather a move towards inclusion of the entire population.

Broader issues of justice and liberty are also brought into jeopardy by the laws on DNA evidence, which cannot be said to promote 'freedom from legal restraint'<sup>21</sup>. Tensions inevitably exist between the autonomy of the individual and the governance of wider society. The ability to determine one's own actions in accordance with personally-derived motives has to be tempered by regulations necessary for the smooth functioning of a community, a process we entrust to government via participation in the democratic process. Nevertheless, along with wider concerns about the drift into a 'surveillance society', questions are being raised about the appropriateness of some of the interventions that have been permitted.

## 2.2 The retention of DNA samples and profiles

Both the CJPOA 2001 and CJA 2003 allow the indefinite retention of DNA samples of arrestees and those charged but later released. Critics arguing against these permissions often take a rights-based approach. The right to a private life as stated in the European Convention of Human Rights and the Human Rights Act 1998;

### *ARTICLE 8 RIGHT TO RESPECT FOR PRIVATE AND FAMILY LIFE*

1 Everyone has the right to respect for his private and family life, his home and his correspondence.

2 There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

Is the right to privacy being actively eroded by the current legislative framework?<sup>22</sup> Two particular cases have brought this question into sharp focus (see Box 3 for details).

In addition to rights-based arguments, critics of the overzealous use of DNA also differentiate this data from other forms of evidence. An individual's genome has the potential to reveal information of both medical and personal significance (e.g. paternity). As Simonceli points out "DNA samples can provide insights into personal

<sup>20</sup> <http://news.bbc.co.uk/1/hi/uk/6979138.stm>, 02/11/07. All must be on the DNA Database, Wednesday 5<sup>th</sup> 2007. BBC News

<sup>21</sup> <http://www.nuffieldbioethics.org/go/ourwork/bioinformationuse/introduction>, 01/11/07, p 27, The forensic use of bioinformation: ethical issues – Report published September 19<sup>th</sup> 2007

<sup>22</sup> <http://www.opsi.gov.uk/ACTS/acts1998/19980042.htm>. 01/11/07. The Office of Public Sector Information. The Human Rights Act 1998. Article 8 (2)

family relationships, disease predisposition, physical attributes, and ancestry”<sup>23</sup>. Although these details do not show up in the DNA profiles as currently constituted, the retention of actual sample material may allow for future analysis of such characteristics<sup>24</sup>.

### Box 3: Testing the right to a private life

*S* was 11 years of age when charged with attempted robbery and later acquitted. *Marper*, a 38 year old man, was arrested for harassment of his partner, but the case was later dropped. In both cases, the claimants (*S* and *Marper*), appealed against their DNA profiles and samples being retained on the DNA database since they had been cleared of any criminality. In their principal ruling, the House of Lords (REF) believed that retention of genetic information in these cases did not constitute a breach of Article 8 of the European Convention of Human Rights. As, such retention did not interfere with either of the claimants private life nor was there any concern of insufficient safeguards, to protect against misuse of the profiles and samples.

The case of *Marper* will soon be heard in the European Court of Human Rights, in Strasbourg. This will test the validity of the current operational powers of the NDNAD in the UK. A recent statement issued by the legal representative of *Marper* clearly outlines their aims and motive;

“We say that if you are not convicted of a crime you are entitled to be put back in the same position as anyone else without a criminal record.”<sup>25</sup>

This would ensure complete equality and provide true clarification of the defining line between innocence and guilt. The once black and white principle has increasingly mixed to a shade of grey, thus moving away from presumption of innocence towards a presumption of guilt.<sup>26</sup>

The potential of DNA to reveal truths about an individual, including forecasting about future circumstance makes genetic data even more sensitive than other forms of personal information, such as medical histories, and demands much thought concerning appropriate safeguards.

Williams and Johnson<sup>24</sup> identify three different views concerning DNA which have an influence on opinions concerning the scope and legitimacy of genetic evidence. They term these positions ‘*genetic exceptionalism*’, ‘*genomic minimalism*’ and ‘*biometric pragmatism*’. Each will be considered in turn.

<sup>23</sup> Simonceli, T. 2006. Dangerous Excursions: The case Against Expanding DNA Databases to Innocent Persons. *Journal of Law Medicine and Ethics*. **34**:390-392

<sup>24</sup> Much of the discussion in this section is based upon arguments put forward by Williams, R. & Johnson, P. 2004. ‘Wonderment and dread’: representations of DNA in ethical disputes about forensic DNA databases. *New Genetics and Society*. **23**:205-223

<sup>25</sup> [http://www.doughtystreet.co.uk/about\\_chambers/news/news\\_detail.cfm?iNewsID=215](http://www.doughtystreet.co.uk/about_chambers/news/news_detail.cfm?iNewsID=215) 02/22/07.

Doughty Street Chambers, DNA and fingerprint case to be heard by highest court in Europe, Published Monday 6<sup>th</sup> August 2007

<sup>26</sup> ‘Europe to rule on whether police can keep DNA of innocent people’, The Independent. Saturday 8<sup>th</sup> September 2007

Individuals holding a '*genetic exceptionalism*' view emphasise that DNA evidence is distinct from other forms of forensic material, such as fingerprints, because the information held within the molecule has a bearing on blood relatives as well as the originator of the sample. As such, the use of genetic data raises issues of consent and of information sharing which make it distinct, i.e. exceptional, when compared with other evidence.

'*Genomic minimalism*', on the other hand, emphasises the fact that a DNA profile actually contains very little information about an individual, not least because the markers used in the determination of a profile are from non-coding regions of the DNA (so called 'junk' DNA). Someone holding this view would want to draw a very clear distinction between a DNA profile and sequencing of a person's whole genome. A DNA profile, they might argue, is simply a barcode, a 'mundane identifier'<sup>24</sup>, of no more ethical significance than a car number plate. Advocates of an expansion of the database to cover the entire population are likely to hold this view, although it is possible to be a minimalist and still have concerns about privacy and liberty.

Steering, in some senses, a middle ground '*biometric pragmatism*' recognises that as humans we all leave a trail of DNA in hair and skin cells that we drop. Under UK law, this material is 'abandoned property' which the police are entitled to collect and use. Holders of this view acknowledge, therefore, the investigative value of DNA but would be keen to see the analysis limited to genetically-uninformative regions of the genome.

### 2.3 Children painted with the same brush

Each year, some quarter of a million ten to seventeen year olds are arrested<sup>27</sup>. Despite the fact that they are 'minors', and that many of their offences will be relatively low-level crime, they are over the age of criminal responsibility and subject to the same rules as adults concerning the taking and retention of DNA samples. Specific ethical questions arise regarding the taking of DNA samples from people under the age of 16 without parental consent and/or the presence of a parent or guardian exploits. A report by the Nuffield Council on Bioethics<sup>28</sup> proposes several recommendations regarding minors. They suggest, subject to a series of criteria (the seriousness of the crime; history of previous arrests; the outcome of the arrest; the likelihood of the individual re-offending; and the danger to the public) that the default position should be the removal of all records, fingerprints, and DNA profiles relating to minors and the destruction of their samples.

But would such qualifications be justifiable or manageable? A filter system such as this would be susceptible to appeal, difficult to implement and very complex. It would also create further inequality amongst those who are on the database, if their information is subject to different regulations. Nevertheless, such a move would place minors on a more ethically-sound footing. Not only would distinction be placed between adults and children in regard to the NDNAD, it would also allow for

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<sup>27</sup> <http://www.nuffieldbioethics.org/go/ourwork/bioinformationuse/introduction>, 01/11/07, p 57 and 58, The forensic use of bioinformation: ethical issues – Report published September 19<sup>th</sup> 2007

<sup>28</sup> <http://www.nuffieldbioethics.org/go/ourwork/bioinformationuse/introduction>, 01/11/07, The forensic use of bioinformation: ethical issues – Report published September 19<sup>th</sup> 2007

distinction based on severity of crime – with the opportunity to treat information from a 12 year old charged with theft in a different way to DNA from a 14 year old murderer.

Another possible suggestion is the retention of samples and profiles is subject to a 'prescription'<sup>29</sup> or time clause dependant upon the circumstances of the case. It is particularly important that minors are encouraged to rehabilitate; removal of DNA records to provide a full second chance may be an appropriate step in that process. The current blanket legislative powers in relation to minors should become more specific to the individuals circumstances, so to become more proportionate. Certainly minors *may* become career criminals, but would it not be better to have a system that sequentially filters out those who are not, rather than automatically painting everyone with the same brush as is the case filtering under the current powers?

## 2.4 Incorporation of volunteers on the database and issues arising from research

A number of issues arise concerning the collection and use of genetic information provided "voluntarily". When a police investigation wishes to implement a mass volunteer screen to aid their criminal enquires, such as that observed in 'Give us your DNA' (00:07:30 – 00:12:16), this action may not be without hidden pressures. Such 'dragnets' remove and dampen some civil liberties as the sample donation may not be entirely voluntary. The individual may not be free from social ostracism<sup>30</sup> resulting from those that believe "if you don't want to give your DNA, you've got something to hide". This reinforces the impression that the forensic use of DNA technology has unfortunately generated culture of presumption of guilt. Further the right to withhold a DNA sample is to implement a right of liberty, to live life free from restraint. Such decisions may also be blurred by the distinction between an individual consenting for a one-off specific police investigation and the consent needed to retain this sample indefinitely. Is such a process as transparent and an informative as possible to enable the individual to provide full and proper consent? Have the opportunities for withdrawing this consent been explained and fully understood?

The donation of a DNA sample relies upon the altruistic nature of the donor, a personal characteristic which can help if the individual is free and willing but can be exploited by the police or locals if someone does not wish to give a sample. Many believe that both the ability to give consent and withdraw consent is of equal importance, which in turn would protect the autonomy and liberty of that individual. The national DNA database annual report 2005/2006 stated that there were 16,038 volunteer profiles and samples on the database. These will be held indefinitely under the CJPOA 2001, which permits such action. Is the retention of these samples fully justified and proportionate? The inabilities of the individual to withdrawn consent, and thus subsequently apply a right to expungement of their DNA details, leaves the ethical principles of autonomy, liberty and equality tarnished.

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<sup>29</sup> Guillen, M. 2000. Ethical-legal problems of DNA databases in criminal investigation. *Journal of Medical Ethics*. **26**:266-271

<sup>30</sup> Cho, M. K & Sankar, P. 2004. Forensic genetics and ethical, legal and social implications beyond the clinic. *Nature Genetics Supplement*. **36**:s8-s12

This issue of 'informed consent' is also raised when discussing the appliance of the national DNA database for research purposes. Under The Police and Criminal Evidence Act 1984 (PACE), it is possible to utilise the database for; the prevention and detection of crime, to conduct a prosecution and investigate an offence. There has however been an emergence of research activities being granted, using data, profiles and DNA samples on the database, a broadening of use that has led to suspicion regarding the motives behind the NDNAD. This 'function creep' is seen as disproportionate; The initial intention of the NDNAD was to link criminals to crime scenes not to carry out research using the DNA profiles and samples. Despite the obvious attraction to genetic scientists presented by access to such a huge sample size and the demand to update DNA identification technologies, this non-operational use of the database may violate the spirit under which voluntary samples were provided.

As mentioned above (Section 1.4), only limited information has been made available regarding the nature and purpose of the projects receiving information, or the identity of those carrying out the research. Many believe that such actions are unjustified because they deviate excessively from PACE 1984 and the specified aims and objectives of the database. Genetic information from volunteers may be being used in ways they never envisaged when they provided their DNA.

The evolution of the database has mirrored that developments made in DNA identification techniques and technologies. This has further broadened the potential uses of the database. One such technique is called 'familial searching'. When a crime scene DNA sample is found which does not match any of the DNA profiles already present on the database, a partial match can be searched for. This would allow the identification of any relative of the criminal who may have their DNA sample on the DNA database, thus leading the police investigation to further avenues of enquiry. This is a genuine 'operational' use, closer to the spirit of the NDNAD than the other research uses mentioned above. Nevertheless there are additional ethical questions arising, such as potential revelations regarding previously unknown relatives.

### 3.0 Concluding points

This extended commentary has elaborated on some of the main ethical points raised in *Give us your DNA* by taking a snapshot of the current status of the police national DNA database. The police have at their disposal a phenomenal tool for crime-fighting, but significant questions are raised about the rights and civil liberties of individuals and of the society they serve to protect. Recent and proposed developments in the database have exposed inadequacies in the current ethical position, which is leading some to fear the rise of a totalitarian state. The infringements of some of the principles and rights to which we have become accustomed in a democratic society may be unacceptable.

Such excessive intrusions led one frustrated man to move away from peaceful campaigns to implement a letter bomb campaign against Britain's "overbearing and over-intrusive surveillance society"<sup>31</sup>. Miles Cooper, a primary school caretaker, was found guilty of 'causing injury by means of explosive substance' to employees at

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<sup>31</sup> 'Letter bomber driven by anger over father's DNA police record', The Daily Telegraph. Friday 28<sup>th</sup> September 2007.

several companies such as the Forensic Science Service and 'Capita' who helps run the London congestion charge. Mr Cooper had become increasingly disgruntled with "the direction my country was heading" and the straw that broke the camel's back was the retention of his father's DNA on the NDNAD despite being cleared following an allegation of assault. "I felt that my father had been used and I felt unable to do anything about it", he said. This is an extreme example, but nevertheless illustrates concerns that held more broadly in society.

This overexploitation of legislative powers by the Government has even provoked Sir Alec Jeffreys, originator of genetic fingerprinting, to voice his thoughts;

*"The real concern I have ... is with what I see as a sort of mission creep. When the database was initially established it was a database DNA from criminals so that if they re-offended they could be picked up. There are now hundreds of thousands of entirely innocent people now populating that database, people who come to the police's attention as a result of being charged with a crime but subsequently released. My view is that that is discriminatory."*<sup>32</sup>

To further fuel the fire of fear and anxiety, there has been an increased awareness and realisation that DNA evidence is fallible and susceptible to manipulation. The issue of fallibility is raised in *Give us your DNA* (22:00-23:38), where a representative from the FSS admits that interpretation of the science is left open to possible human error. The reliability of such evidence is also questioned (18:50-22:00). In this instance the documentary tells how DNA had linked one man to crime which he would not have had the physical capacity to carry out, and another man to an armed robbery because DNA evidence had been planted by an investigating officer. Such action damages the trust between the police and the general public.

The competence of the police to use such an investigative tool has also been scrutinised. A serial sex attacker had his DNA taken and added to the database on suspicion of a minor offence in 2002<sup>33</sup>. His sample was mislaid and there was an 'oversight', with regard to where his sample was sent. As a result the man was not linked to several sex attacks 4 years earlier, which allowed him to go on to rape two 15 year old girls, carry out two burglaries and attempted indecent assault. This 'oversight', was a grave mistake, which placed the public at risk, and has thus damaged the public's trust and reliability in the police.

It remains to be seen how the NDNAD will develop in the near future. Will the addition of information relating to law-abiding citizens serve to diminish the justification for such actions and thus dilute the cause? Or will the current piecemeal situation demand the need to incorporate the entire population of the database to remain proportionate?

Between March and May of 2007, the Home Office reviewed 'The Police and Criminal Evidence Act 1984. They made several proposals regarding biometric data, which most notably included the taking of DNA samples for non-recordable

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<sup>32</sup> [http://www.bbc.co.uk/radio4/today/listenagain/zwednesday\\_20061101.shtml](http://www.bbc.co.uk/radio4/today/listenagain/zwednesday_20061101.shtml) Sir Alec Jeffreys, BBC Radio 4, Today Programme, 1<sup>st</sup> November 2006, 07:20am and 08:10am.

<sup>33</sup> 'Rape suspect freed after police mislaid DNA' The Times, Wednesday 19<sup>th</sup> September 2007

offences<sup>34</sup>. This would empower police to take a DNA sample and retain it indefinitely from individuals, who have dropped litter or committed a speeding offence<sup>35</sup>. Lord Justice Sedley recently announced that he would go a step further and incorporate the entire population on the database<sup>36</sup>. He believed such a move would be justified because;

*“we have a situation where if you happen to have been in the hands of the police then your DNA is on permanent record... it means where there is ethnic profiling going on, disproportionate number of ethnic minorities get onto the database... it also means that a great many people who are walking the streets and whose DNA would show them guilty of crimes, go free”.*

Whatever the future holds, the current position, it seems, is a minefield of ethical concern. Many civil libertarians believe that the surveillance society is protected by a paper firewall and has moved towards being a country of suspects, thus allowing the governmental authorities to pursue hidden objectives. Others believe that the current powers do not go far enough and should be expanded further.

A tension inevitably exists. This discussion highlights the difficulties there are when dissecting the position of privacy in relation to DNA. As with each of the ethical issues raised above, intrusions into privacy must be judged with consideration of its effects for the wider society and with regard to the context in which DNA is used. Fear and anxiety is fuelled by concern that DNA samples and profiles will be employed more broadly than forensic policing, e.g. in regard to insurance, health and, in particular, for non-operational research. These actions without consent may diminish both public trust and autonomy, as suspicion of ulterior motives by governmental authorities will undermine its use, unless there is a realisation to re-establish trust through transparent evidence demonstrating the effectiveness of using the database in any such a way.

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<sup>34</sup> <http://police.homeoffice.gov.uk/news-and-publications/publication/operational-policing/PACEReviewsummary310707.pdf>, 01/11/07. Home Office Review, The Police and Criminal Evidence Act (PACE) 1984. Summary of responses to public consultation exercise (16<sup>th</sup> March – 31<sup>st</sup> May 2007)

<sup>35</sup> 'Police want DNA from speeding drivers and litter louts on database', The Times. Thursday 2<sup>nd</sup> August 2007

<sup>36</sup> All UK 'must be on the database', <http://newsvote.bbc.co.uk/mpapps/pagetools/print/news.bbc.co.uk/1/hi/uk/6979138.stm>, 19/09/07. BBC news website. Published 5<sup>th</sup> September 2007