

Would 114 murderers have walked away if innocent people's records were removed from the National DNA Database?

On 17th June 2008, in a major speech on 'Liberty and Security', Gordon Brown stated:

"I say to those who questioned the changes in the Criminal Justice and Police Act 2001, which allowed DNA to be retained from all charged suspects even if not found guilty: if we had not made this change, 8,000 suspects who have been matched with crime scenes since 2001 would in all probability have got away, their DNA having been deleted from the database. This includes 114 murders, 55 attempted murders, 116 rapes, 68 other sexual offences, 119 aggravated burglaries, and 127 drugs offences".

This briefing examines the evidence for this claim and concludes that:

1. The Prime Minister's claim is false;
2. Ministers are well aware that this claim is false;
3. This figure is misleading to members of the public who are concerned about the implications of retaining innocent people's records indefinitely on the National DNA Database.

1. Where the figures come from

An earlier version of the figures cited by the Prime Minister was supplied to the House of Lords in the 'Marper case' by Dr Bramley, then Custodian of the National DNA Database (NDNAD).¹ Dr Bramley's statistics are summarised in House of Lords' judgment in the case²:

"As at 31 March 2004, the total number of DNA profiles on the DNA database which relates to entries where the parent PNC [Police National Computer] records have been deleted is 162,433. It is estimated that approximately 86% of the PNC record deletions are attributable to subsequent acquittals. Allowing for an 8% replication rate among acquittals (for example, reflecting dual entries through use of aliases, etc), it is estimated that there are approximately 128,517 DNA profiles on the DNA database which would previously have been required to be deleted. From these, approximately 5,922 DNA profiles have linked with crime scene stain profiles in respect of 6,280 offences. These offences include 53 murders, 33 attempted murders, 94 rapes, 38 sexual offences, 63 aggravated burglaries and 56 offences of the supply of controlled drugs."

In January 2006, the Home Office released a report which updates Dr Bramley's statistics³. It states (paragraph 15, page 6):

"Since the legal change that took place in 2001, it is estimated that approximately 198,000 profiles that would have previously been removed have been retained on the Database. Of these, at 31 March 2005, 7,591 profiles had been matched with crime scene profiles involving 10,754 offences, including 88 murders, 45 attempted murders, 116 rapes, 62 sexual offences, 91 aggravated burglaries and 94 of the control of supplied drugs".

More recent figures are available in the National DNA Database Annual Report 2005/06⁴

which covers the period to the end of March 2006. It states (page 36):
“Matches Involving Profiles Retained under the Criminal Justice and Police Act 2001. Of the 200,300 or so profiles on the NDNAD that have been retained under the CJPA 2001 and would previously had to have been removed, approximately 8,500 profiles from some 6,290 individuals have been linked with crime scene sample profiles from some 4,000 offences. These offences include 114 murders, 55 attempted murders, 116 rapes, 68 sexual offences, 119 aggravated burglaries and 127 of the supply of controlled drugs.”

Note that the “4,000 offences” referred to in the Annual Report appears to be an error: an alternative figure of 13,964 offences was given in response to a Parliamentary Question in March 2006⁵. The Report (pages 31 and 32) explains that these estimates are based on a ‘retained acquittals’ flag used to mark NDNAD records between May 2001, when the legislation allowing DNA records to be retained was adopted, and December 2005, when software for the Police National Computer (PNC) was modified to allow retention of the corresponding records on the PNC.

This is the most recent evidence available, covering the period to end March 2006, and is the source for the Prime Minister’s claim.

All the sources cited make clear that the figures are based on estimates of the number of DNA profiles retained that would previously have had to be removed, followed by a further estimate of the number of matches that have occurred between these DNA profiles and DNA profiles obtained from biological samples (such as blood, hair, semen or saliva) collected at crime scenes.

2. What the figures mean

The figures cited by the Prime Minister are not based on the tracking of actual cases. Rather, they are based on a statistical estimate of the numbers of matches that may have occurred between crime scene DNA profiles and the DNA profiles of persons who were charged but not proceeded against or acquitted. This immediately introduces considerable uncertainty about how many matches have actually occurred, since the assumptions that have been made are not verifiable. Not only is the actual number of retained profiles from innocent people unknown, but it is unclear how the number of matches made with these profiles have been calculated, since the estimate does not correspond to specific individuals.

More importantly, the Prime Minister claimed in his speech that all these matches are with “*suspects*” and that these suspects “*would in all probability have got away*” had their DNA not been retained. However, DNA matches are not successful prosecutions and many matches occur with the DNA of individuals who are not the perpetrator of the crime, including victims and passers-by, or are false matches.

Only some matches, known as DNA detections, lead to someone being prosecuted for a crime, and not all DNA detections will lead to a conviction. The National Policing Agency (NPIA), which now runs the National DNA Database, states: “*As convictions are achieved through integrated criminal investigation, not by forensic science alone, it is not possible to provide figures for the number of convictions produced by DNA*”.⁶

Roughly speaking, eight DNA matches lead to four detections, two of which lead to convictions, one of which will involve a custodial sentence.⁷ However, only about half of these are 'new' detections, which require the Database – in the other cases the suspect will already have been identified prior to collection of their DNA. This means their DNA could be taken from them during the investigation and the existence of their record on the Database is not necessary to obtain the match. These figures are dominated by volume crimes, such as burglaries, and separate figures are not available for more serious crimes such as rape and murder, for which the Database is less effective.

The Home Office notes that DNA has varying contributions to different types of crime and states in its report³ (paragraph 50): “*DNA has been shown to be of crucial importance in that subset of crimes where suspect identity is not immediately apparent, e.g. burglary and vehicle crime*”. Although DNA often provides important evidence in murder cases, it is extremely rare for a suspected murderer to be first identified via a 'cold hit' on the Database: partly because murderers are often known to their victims and partly because it is often the victim's DNA (for example, in their blood found on the perpetrator's clothing) that is more useful in such cases. Similarly, although DNA evidence can be very important in some cases, most rapes involve disputes about consent (which cannot be resolved by taking DNA), not about identity.

Matches also include false matches, often because DNA profiles obtained from crime scenes are not complete. For example, the National DNA Database Annual Report 2005/06⁴ (page 35) states that between May 2001 and April 2006, 50,434 matches with crime scene profiles, or 27.6% of the total number of match reports, involved a list of potential suspects, not a single suspect, being given to the police, because matches with multiple records on the NDNAD were made.

The Prime Minister's claim also fails to distinguish between the computerised DNA profiles held on the National DNA Database, and people's actual DNA (usually collected in a sample of their cheek cells taken at the police station using a mouth swab). The DNA samples are stored indefinitely by the commercial laboratories which analyse them for an annual fee, and raise additional privacy concerns because they contain unlimited genetic information. The retention of DNA samples has not contributed to the detection and prosecution of serious crime – only the retention of computerised DNA profiles on the NDNAD is necessary to obtain a match. The Home Office has recognised that retaining samples is “*one of the most sensitive issues to the wider public*”⁸ and the Human Genetics Commission has concluded that the reasons given for retaining them are “*not compelling*”.^{9,10}

3. Do the 114 murderers exist?

It is not possible – let alone probable - that 114 murderers would have walked away if DNA profiles from innocent people were not kept on the NDNAD, because the number of convictions is always considerably less than the number of DNA matches. In addition, suspects in murder cases are often identified by means other than a 'cold hit' on the Database: claiming that they would “walk away” if they did not have a record on the Database is therefore highly misleading. Since the law changed, the Government has provided no examples of murders that have been solved as a result of retaining the DNA of innocent people beyond the period necessary to investigate whether they have committed a past offence.

The purpose of *retaining* an individual's DNA profile on a database (as opposed to collecting it) is to treat them as a suspect for any *future* crime. Although no figures are available, examples do exist of serious offenders whose DNA has been sampled in connection with a relatively minor offence and which has matched a *past* crime scene DNA profile when it is added to the Database. However, these cases are only relevant to discussion of when the police should be allowed to collect an individual's DNA, not whether they should keep it.

Brief details of two rape cases which do involve retention of DNA profiles from arrested persons have been provided in the National DNA Database Annual Report 2005/06 (page 14). These cases involve alleged violent disorder and assault, in circumstances where the victims have not been willing to press charges. In both cases the individuals went on to rape a stranger and to be identified by a match with their DNA profile held on the NDNAD. However, both cases raise more questions than they answer because of Britain's poor record in tackling rape and domestic violence.¹¹ It seems likely that these rapes could have been prevented by a more effective system to tackle violence against women at an earlier stage. A recent report by the Home Affairs Committee has concluded that the Government's approach to all forms of domestic violence remains disproportionately focused on criminal justice responses at the expense of effective prevention and early intervention.¹²

4. Just a misunderstanding?

The Prime Minister's claim is not the first time that DNA matches have been confused with successful prosecutions, or that irrelevant cases have been cited in support of retaining innocent people's DNA.

4.1 The debate in Scotland

In 2005, the Scottish Executive held a public consultation on whether or not people who are arrested in Scotland should have their DNA retained following acquittal or if charges against them are not pursued.

On 14th February 2006, the Association of Chief Police Officers in Scotland's Lead on DNA Issues, the Chief Constable of Lothian and Borders police, claimed in the *Edinburgh News*¹³: "*The most compelling argument for this change in law is that it will help us to catch criminals.*

This isn't some kind of theoretical forecast - we know from Home Office statistics that since 2001, when the law changed in England and Wales, police forces there have solved 10,000 offences using DNA that under the current law in Scotland would have to be destroyed.

This includes 88 murders, 45 attempted murders, 116 rapes, 62 other sexual offences, 91 aggravated burglaries and 94 offences of the supply of controlled drugs".

As with the Prime Minister's more recent claim, this statement wrongly confused an estimate of DNA matches with actual solved crimes.¹⁴

GeneWatch UK published its first analysis of the UK Government's claims regarding the benefits of retaining DNA profiles from unconvicted persons in February 2006⁷ and sent a copy of its report to Andy Burnham MP, then the Parliamentary Under Secretary of State at the Home Office with responsibility for the National DNA Database. In his reply

of 15th March 2006, the minister stated: “...*You raise important points about understanding the impact of DNA. The interpretation of statistics in the context of the processes which they represent is vital and **your analysis of that set of crimes for which DNA provided a first link to a suspect is sound.** These crimes are not the only ones in which DNA provides a useful contribution, however. Despite the apparent ‘losses’ through the investigative process that you note, the presence of DNA can have additional benefits not represented in the statistics, such as reducing the time of the investigation, stopping criminals earlier in their careers and reducing subsequent court time*”. [Emphasis added]

In March 2006, the Justice 2 Committee of the Scottish Parliament sought further information regarding the benefits of DNA retention from unconvicted persons from the Association of Chief Police Officers in Scotland (ACPOS). They were provided with only one burglary case and two speculative murder cases, which had been solved but might have been solved more quickly had the individuals’ DNA profiles been on the Database.¹⁵

The Scottish Parliament voted against indefinite retention of DNA profiles and samples from persons acquitted or not proceeded against, in May 2006.^{16,17} Instead, police powers were expanded to allow temporary retention (for up to 5 years, with judicial oversight) from a much smaller number of people who had been charged but acquitted of a serious violent or sexual offence.¹⁸ The Scottish Government is currently conducting a review of this decision in order to assess whether the temporary retention of data from this more limited category of unconvicted persons is appropriate.¹⁹ In conducting its review, the Scottish Government has expressly ruled out the indefinite retention of fingerprint and DNA data acquired from individuals who are not convicted of any crime. The Scottish Parliament reiterated its position in a vote on 28th February 2008, rejecting the blanket retention of DNA samples and fingerprints, and recognising that “*appropriate utilisation of DNA samples and fingerprints can play an important role in identifying offenders but that it is vital to strike the right balance between prosecuting criminals and protecting the innocent*”.²⁰

4.2 The Marper case

The Marper case – in which two innocent people are seeking removal of their DNA records¹ - was heard the the Grand Chamber of the European Court of Human Rights just days after the convictions of two killers in Britain as a result of DNA matches.

The convictions of Steve Wright, who murdered five women in Suffolk, and Mark Dixie, who killed Sally Anne Bowman, both highlighted the importance of DNA evidence. However, neither case would have been affected by a decision to remove innocent people’s records from the Database.

Wright had a previous conviction for theft²¹ and, even if his record had not been on the database, had already been stopped twice by the police before the crime scene DNA profile was obtained²². This means his DNA could have been taken by the police even if his record wasn’t on the Database, although it would have taken longer before the match was made.

Sally Ann Bowman’s killer Mark Dixie was not on the DNA Database, however he did have previous convictions which took place before the Database was established. The

case was solved when his DNA was taken following a fight in a bar, nearly nine months after the murder. The police officer who headed the investigation, Detective Superintendent Stuart Cundy, announced that the murder would have been solved much faster had there been a universal DNA database including everyone in Britain.²³ However, this neglected to discuss how Wright's DNA might have been included in this database. Adding adult volunteers onto the database would cost a lot of money and police time and be unlikely to catch any serious offenders, because they would simply not turn up to give their DNA. If DNA was taken at birth, in ten years' time there would be a DNA database of every child under ten who had been born in Britain – but this would not have helped to catch any murderers or rapists. The children on the database would be vulnerable to identification and abuse by anyone who could infiltrate the system.

The British Academy of Forensic Sciences has noted that “*in reality there are a number of disadvantages*” with profiling everyone at birth, which it lists as²⁴:

- The scale of the operation would be disproportionate, since only a minority commit crimes
- It would increase anxieties about ‘big brother’, already evoked by widespread CCTV coverage and proposed biometric identity cards
- It might be seen to imply that we are all guilty until proven innocent
- There have, and will be, mistakes, chance matches and false matches with close relatives, made even more likely where profiles are incomplete
- Links will be established all the time between the scene and innocent individuals, leading to false inferences
- It would render every member of the population vulnerable to attack, by for example having their DNA planted at a crime scene
- In future it is possible that profiles could also reveal confidential information about the health of an individual
- It would be impossible to control for the large numbers of people who enter and leave the country, both legally and illegally.

The details of the Ipswich case, together with another case (the ‘RvB’ case) were repeated in the European court, even though neither are relevant to the decision to retain DNA from innocent people. The ‘RvB’ case involved an horrific rape, in which a match to an individual’s DNA profile was made after his profile should have been removed, under the pre-2001 law. However, the details of the case show that the rape occurred before the individual’s DNA was collected in connection with another crime (suspected burglary), and the problem only arose because his sample was not analysed for nearly nine months, until after his acquittal for the burglary.²⁵ New procedures mean this should not happen again in the future.

5. Has expanding the DNA database helped to tackle crime?

The NDNAD is a useful tool in criminal investigations, but the permanent retention on it of everyone who has been arrested for a recordable offence raises important concerns about privacy and rights, including:

- the potential threat to ‘genetic privacy’ if information is revealed about health or family relationships, not just identity;
- the creation of a permanent ‘list of suspects’ that could be misused by governments or others;

- the potential for unauthorised access, abuses and/or misuses and mistakes: including the tracking of individuals and their relatives, and the implications of false matches;
- the exacerbation of discrimination in the criminal justice system.

GeneWatch UK is not opposed to the existence of the DNA Database, or the use of DNA in criminal investigations, but has questioned the benefits of its rapid expansion.

Overall, analysis of Home Office data shows that collecting more DNA from *crime scenes* has made a significant difference to the number of crimes detected using DNA, but keeping DNA from increasing numbers of individuals has not. In its 2006 report³, the Home Office states: “*Evaluation of the [DNA Expansion] Programme has shown that the number of matches obtained from the Database (and the likelihood of identifying the person who committed the crime) is ‘driven’ primarily by the number of **crime scene profiles loaded onto the Database**” [emphasis added].*

DNA detections increased significantly between 1998/99 and 2002/03, but the number of crime scene DNA profiles loaded onto the Database each year also more than tripled during this time (from 19,233 in 1998/99 to 65,649 in 2002/03³). Since 2002/03, the number of individuals with DNA profiles on the Database has doubled from 2 million to 4 million, but there has been no corresponding increase in the number of crimes detected. DNA matches have gone down slightly and the chances of detecting a crime using DNA has remained roughly constant.

Year	2002-03	2003-04	2004-05	2005-06	2006-07
Number of individuals' DNA profiles stored†	2,099,964	2,371,120	2,802,849	3,534,956	3,976,090
Crime with DNA match	49,913	45,269	40,169	45,221	41,717
Crime with DNA detection*	21,098	20,489	19,873	20,349	19,949
Recorded crimes	5,920,156	6,042,991	5,623,263	5,556,513	5,428,273
Percentage of recorded crimes involving DNA detections	0.36%	0.34%	0.35%	0.37%	0.37%

† These figures include some repeat records (an estimated 13.7% of the total). The 2006/07 figure is an estimated figure to 10th June, provided in response to a PQ. By October 2007, there were 4.1 million individuals with records on the NDNAD.

* House of Commons Hansard 30 Apr 2008 : Column 489W. The DNA database is only important for some of these DNA detections (about half), because for about half of them the suspect was already identified before being entered on the database.

Innocent people with records retained indefinitely on the NDNAD now include people who have been arrested for any recordable offence, aged ten or above, who have not been charged, have had charges against them dropped or who have been acquitted. By far the majority of these people have not had their DNA taken for the purposes of investigating the offence for which they have been arrested, because DNA is collected from less than 1% of crime scenes²⁶: in general they will have no reason to have even been suspected of a serious crime such as rape or murder. It is therefore not surprising

that the retention of their records (until age 100) on the Database has not increased the crime detection rate.

The Nuffield Council on Bioethics notes (paragraph 5.52)²⁷: “...*There is very limited evidence indeed that the retention regime of England and Wales is effective in significantly improving detection rates...The match rates between stored subject profiles and new crime scene profiles loaded onto the NDNAD in England and Wales, which is 52 per cent, can be contrasted with that of the Scottish DNA Database, which has a higher match rate of 68 per cent. This demonstrates clearly that the more limited retention policy in Scotland does not necessarily negatively impact upon its subsequent match rates*”.

Figures from the same report (paragraph 4.34) show that storing the DNA samples of the estimated 1 million innocent people on the DNA database costs about £1 million a year, resources that might be spent on alternative ways to tackle crime.

6. Conclusions

Examination of the evidence shows that:

- The figures cited by the Prime Minister refer to an estimate of DNA matches, not solved crimes;
- The reported matches are not actual matches obtained with individuals' profiles retained on the NDNAD following acquittal or charges being dropped, but are an estimate based on a number of unverifiable assumptions;
- DNA matches are not successful prosecutions and many matches occur with the DNA of individuals who are not the perpetrator of the crime, including victims and passers-by, or are false matches;
- The retention of DNA samples has not contributed to the detection and prosecution of serious crime – only the retention of computerised DNA profiles on the NDNAD is necessary to obtain a match. The DNA samples are stored by the commercial laboratories which analyse them for an annual fee, and raise additional privacy concerns because they contain unlimited genetic information.
- Misinformation about the impact of DNA retention on solved crimes is likely to mislead the public about the recent massive expansion of the National DNA Database. Retaining innocent individuals' DNA is costly but has delivered no detectable improvement in solving crimes: this contrasts with the improved collection and analysis of crime scene DNA.

GeneWatch UK concludes that:

1. The Prime Minister's claim that “in all probability” 114 murderers would have walked away had innocent people's records not been retained on the National DNA Database is false.
2. Ministers are well aware that this claim is false;
3. This figure is seriously misleading to members of the public who are concerned about the implications of retaining innocent people's records indefinitely on the National DNA Database.

- ¹ This case was subject to an appeal to the European Court of Human Rights, from which a judgment is awaited. The two applicants, Marper and 'S' (a juvenile) are seeking removal of their records and destruction of their DNA, following cases in which charges were dropped and the individual was acquitted, respectively.
- ² House of Lords (2004). <http://www.publications.parliament.uk/pa/ld200304/ldjudgmt/jd040722/york-1.htm>
- ³ Home Office (2006) DNA Expansion Programme 2000-2005: Reporting achievement. Forensic Science and Pathology Unit. <http://police.homeoffice.gov.uk/news-and-publications/publication/operational-policing/DNAExpansion.pdf>
- ⁴ The National DNA Database Annual Report 2005/06. <http://www.homeoffice.gov.uk/documents/DNA-report2005-06.pdf>
- ⁵ House of Commons Hansard 1 Mar 2006 : Column 842W
- ⁶ Neyroud P (2008) Letter to Tom Levitt MP, Re: Letter from Helen Wallace. 25th April 2008.
- ⁷ GeneWatch UK (2006) The DNA expansion programme: reporting real achievement? February 2006. http://www.genewatch.org/uploads/f03c6d66a9b354535738483c1c3d49e4/DNAexpansion_brief_final.pdf
- ⁸ Home Office (2005). Supplementary Memorandum, Appendix 20. In: House of Commons Science and Technology Committee (2005) Forensic science on trial, Volume II. HC 96-II, www.publications.parliament.uk/pa/cm200405/cmselect/cmsctech/96/96ii.pdf
- ⁹ Human Genetics Commission (2002). Inside information. May 2002. http://www.hgc.gov.uk/UploadDocs/DocPub/Document/insideinformation_summary.pdf
- ¹⁰ Human Genetics Commission (2005) HGC response to the Scottish Executive consultation on police retention of prints and samples. <http://www.scotland.gov.uk/Resource/Doc/77843/0018244.pdf>
- ¹¹ End Violence Against Women (2007) Making the grade? 2007. The third annual independent analysis of UK Government initiatives on violence against women. http://www.endviolenceagainstwomen.org.uk/data/files/evaw_mtg_uk.pdf
- ¹² Home Affairs Committee (2008) Domestic violence, forced marriage and 'honour'-based violence. Sixth Report of Session 2007/08. Vol I. <http://www.publications.parliament.uk/pa/cm200708/cmselect/cmhaff/263/263i.pdf>
- ¹³ Tomkins P (2006) Clear evidence for switch in DNA law. Edinburgh News. 14th February 2006. <http://edinburghnews.scotsman.com/comment/Clear-evidence-for-switch-in.2750809.jp>
- ¹⁴ Morgan J (2006) Police DNA records plan 'fails to solve more crimes' Warning on keeping profiles of the innocent. The Herald. 27th February 2006.
- ¹⁵ ACPOS(2006) Letter from Chief Constable William Rae to Mr Steven Talloch, Justice 2 Committee. 24th March 2006.
- ¹⁶ Scottish Parliament Justice 2 Committee Official Report 28 March 2006. <http://www.scottish.parliament.uk/business/committees/justice2/or-06/j206-0902.htm#Col2146>
- ¹⁷ Scottish Parliament Official Report. Police, Public Order and Criminal Justice (Scotland) Bill: Stage 3. 25 May 2006. <http://www.scottish.parliament.uk/business/officialReports/meetingsParliament/or-06/sor0525-01.htm>
- ¹⁸ <http://www.scotland.gov.uk/News/Releases/2007/01/29133555>
- ¹⁹ Scottish Government Review, 3rd December 2007.
- ²⁰ <http://www.scottish.parliament.uk/business/chamber/mop-08/mop08-02-28.htm>
- ²¹ Ipswich accused: 'Yes I used prostitutes'. Sky News, 7th February 2006. <http://news.sky.com/skynews/article/0,,30100-1304402,00.html>
- ²² Fresco A (2008) Scientists' elation at finding DNA that led to a murderer. The Times. 22nd February 2008. <http://www.timesonline.co.uk/tol/news/uk/crime/article3410814.ece>
- ²³ Kelly J (2008) DNA database debate urged. BBC Online. <http://news.bbc.co.uk/1/hi/uk/7259494.stm>
- ²⁴ British Academy of Forensic Sciences (2007) Submission to the consultation held by the Nuffield Council on Bioethics on 'The forensic use of bioinformation: ethical issues'. http://www.nuffieldbioethics.org/fileLibrary/pdf/British_Academy_of_Forensic_Sciences.pdf
- ²⁵ Williams R, Johnson P, Martin P (2004) Genetic information and crime investigation. p.36.
- ²⁶ In 2004/05, 913,717 crime scenes were examined (16.2% of crime scenes), potential DNA material was collected from 12% of these, and 45% of these crimes yielded DNA profiles that were uploaded to the Database. Paragraphs 23-25, Home Office(2006).
- ²⁷ Nuffield Council on Bioethics Report: The forensic use of bioinformation: ethical issues. <http://www.nuffieldbioethics.org/go/ourwork/bioinformationuse/introduction>

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