The law in England and Wales now allows the police to take DNA samples routinely without consent from anyone arrested in connection with any recordable offence: including being drunk and disorderly, begging or taking part in an illegal demonstration. All DNA samples are kept permanently by the companies that analyse them, and the computerised DNA profiles and personal data (such as name and ethnic group) are also kept permanently electronically on the National DNA Database (NDNAD), even if a person is never charged or is acquitted.\(^1\,^2\)

No other countries keep DNA profiles and samples from innocent people for life and Britain's DNA Database is now the largest in the world, containing over 3.5 million people. More than a million people on the Database have not been convicted or cautioned for any crime,\(^3\) although some of these people will be awaiting trial. Many other individuals, including children, are kept permanently on the Database for relatively minor public order offences.

In January 2006, in response to the case of a child arrested due to mistaken identity, former Home Office Minister, Andy Burnham MP, stated that: "The decision whether to retain or remove a sample is an operational one for the chief constable of the police force which took it."\(^4\) Essentially the law allows for an individual's DNA profile to be added to the database but does not make it compulsory to do so, or to keep their records and samples permanently. However, in practice both the collection and permanent retention of DNA is now routine for all people arrested and taken to a police station in England or Wales, from the age of ten, and removal is being restricted to 'exceptional' cases.\(^5\)

The DNA Database is an important tool for criminal investigations and brings major benefits – including helping to identify some murderers and rapists. However, there are questions about the extent to which all the DNA samples and profiles taken should be kept...

Councillors and members of Police Authorities are responsible for monitoring police budgets and holding the chief constable to account on behalf of the local community. The London borough of Brent has become the first council to ask their local police force to end the practice of taking DNA routinely on arrest and keeping innocent people permanently on the National DNA Database. Councils and Police Authorities now have an opportunity to develop policies on DNA collection and retention which provide better protection for privacy and rights, and which increase both public trust and cost-effectiveness.
indefinitely. Existing practices that raise human rights and privacy concerns are:

- retaining DNA samples (which contain unlimited genetic information), rather than just the computerised DNA profiles used for identification;
- using the Database and DNA samples for genetic research without consent;
- taking DNA on arrest, rather than waiting until a person is charged with an offence;
- retaining people’s records permanently on the Database regardless of the nature of their offence;
- including people permanently on the Database who have been arrested but not charged, or who have been acquitted.

Concerns about privacy have also recently been increased by plans to allow access to the National DNA Database by law enforcement agencies in other European Union countries. This briefing outlines the main issues and the role that councillors and Police Authorities could play in decisions about police use of DNA.

What is the National DNA Database?

The National DNA Database was established in 1995. It relies on the fact that DNA can be taken from any sample of human tissue left at the scene of a crime. DNA profiles (a string of numbers based on part of the chemical sequence of the DNA) can be obtained and stored on computer from both crime scene DNA and from individuals’ DNA (usually collected at a police station using a simple mouth swab). Every night a ‘speculative search’ of the Database is run to look for new DNA profile matches. A match between an individual’s DNA profile and a crime scene DNA profile indicates a high probability that the individual was at the crime scene and is therefore useful in criminal investigations.

A DNA database is not required to provide evidence of guilt or innocence when there is a known group of suspects for a specific crime: a DNA sample can be taken from each individual (without consent on arrest, or with consent before arrest) and the DNA profile can be compared directly with a crime scene profile. For the same reason, a database of individual DNA profiles is also unnecessary to exonerate an innocent person. The ‘added value’ of putting individuals on a database is only to introduce new suspects into a past or future
investigation. The Government often cites the number of DNA matches between crime scenes and individuals on the Database. Although they sound impressive, these figures include many matches with victims and innocent passers-by. Only some matches (called DNA detections) involve sufficient evidence to charge someone for a crime, and not all DNA detections lead to prosecutions or convictions. The aim of putting more crime scene DNA profiles on the Database is to increase the number of crimes detected and the aim of entering and retaining more individuals’ DNA profiles on the Database is to increase the likelihood of detecting a crime using DNA.

The value of entering increasing numbers of DNA profiles from individuals on the Database (unrelated to the reason for arrest) is that it may allow investigation of a past crime to be re-opened, by unexpectedly identifying a new suspect. The purpose of retaining an individual’s DNA profile on a database is to treat them as a suspect for any future crime. This is arguably likely to be of most benefit when an individual has a record as a “career criminal” and is considered likely to re-offend (or, perhaps, to be deterred from re-offending by the retention of their profile). Although it is possible that a previously innocent person subsequently commits a crime and is identified because their DNA profile is already on the Database, it is the permanent retention of these profiles that is most controversial.

The best use of police resources?

“**It is arguable that the general retention of profiles from the un-convicted has not been shown to significantly enhance criminal intelligence or detection**”. The Police Liaison Officer, Scottish DNA Database, 2005.⁷

Existing data suggests that permanently retaining the DNA of everyone who is arrested has not made any noticeable difference to the likelihood of detecting a crime.⁸ Collecting more DNA from crime scenes has made a significant difference to the number of crimes solved, but keeping DNA from more and more people who have been arrested – many of whom are innocent – has not. Since April 2003, about 1.5 million extra people have been added to the Database, but the chances of detecting a crime using DNA has remained roughly constant, at about 0.36% (Table 1). Crimes detected using DNA did not increase when the law allowing DNA to be taken on arrest came into force in April 2004.
Table 1: Crimes detected using DNA

<table>
<thead>
<tr>
<th>Year</th>
<th>2002-03</th>
<th>2003-04</th>
<th>2004-05</th>
<th>2005-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of individuals’ DNA profiles on NDNAD†</td>
<td>2,099,964</td>
<td>2,371,120</td>
<td>2,802,849</td>
<td>3,534,956</td>
</tr>
<tr>
<td>DNA detections</td>
<td>21,098</td>
<td>20,489</td>
<td>19,873</td>
<td>20,349</td>
</tr>
<tr>
<td>Recorded crimes</td>
<td>5,920,156</td>
<td>6,042,991</td>
<td>5,623,263</td>
<td>5,556,513</td>
</tr>
<tr>
<td>Percentage of recorded crimes detected using DNA</td>
<td>0.36%</td>
<td>0.34%</td>
<td>0.35%</td>
<td>0.37%</td>
</tr>
</tbody>
</table>

† These figures include some repeat records (an estimated 10% of the total).


The retention of DNA samples (as opposed to the computerised DNA profiles) also does nothing to increase DNA detection rates, but increases privacy concerns (see below). This suggests that a smaller DNA Database, with DNA samples kept only temporarily and people’s DNA profiles and other information removed from the computer after fixed time periods, could be introduced without reducing the effectiveness of the Database in tackling crime. It would also cost less because the police would not have to pay for the storage of DNA from so many innocent people. A recent poll has shown public support for reintroducing time limits on how long people are kept on the Database, depending on the nature of their offence.14,15

Concerns about privacy and rights

Few people have problems with the idea of the police comparing the DNA of a suspect with DNA left at the scene of a serious crime. However, concerns arise when DNA profiles and other information are stored permanently on a database, especially when the database includes large numbers of innocent people. The National DNA Database is a useful tool in criminal investigations, but the permanent retention on it of everyone who has been arrested 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’ – including anyone arrested in England and Wales since April 2004 - that could be misused by governments or made available to a much wider range of organisations in the future;
- the exacerbation of discrimination in the criminal justice system.
permanent retention of children’s records on the Database, its racial bias and its use for genetic research without consent. Some new forensic techniques could also make errors more likely.

**Retention of children’s DNA**

“I’m worried that it will scar my record for life. It might come up if I went for jobs, such as with children – not that I’ve been in trouble, but just that I’m known to the police.” Caitlin Bristow, aged 15, arrested in England following a counter-claim after reporting an assault.¹⁶ Never charged with any offence.

More than 51,000 children who have never been charged or cautioned with any offence, including 30 under the age of 10, have had DNA samples taken by the police. 24,000 of these children are still under the age of 18. In total, about 700,000 children are on the Database.¹⁷ The total number of innocent children with records on the Database (including those who had their charges dropped or were acquitted) is unknown. Research has found that both parents and children also have reservations about DNA samples being taken for petty crime and feel that there are dangers in stigmatising young people for a one-off act.¹⁸

**Racial bias**

More than a third of black men in the UK population are now on the National DNA Database, prompting the Black Police Association to call for an investigation.¹⁹ For example, black people in the West Midlands are almost five times as likely as white people to have their details recorded.²⁰ An even higher proportion of young black men have records on the Database (up to three out of four black men between the ages of 15 and 34).²¹

**Retention of samples**

As well as storing the computerised DNA profile obtained from analysis of the sample on the Database, part of the DNA sample is also retained indefinitely, linked to an individual's record on the Database via a unique barcode reference number. The companies that analyse the samples are paid an annual fee to store them by the police. The DNA profiles held on the Database can be used to investigate who a person is related to (including non-paternity), but are unlikely to
contain personal genetic information about health or other characteristics. This is because they are based on ‘non-coding’ parts of DNA (not on genes), which are not thought to be important in influencing biological differences such as health or appearance. However, the DNA samples contain unlimited amounts of genetic information, increasing privacy concerns.

Storing samples from crime scenes makes sense, so that the profile can be checked if necessary. However, the stored samples from individuals are not needed to prevent miscarriages of justice, because a fresh DNA sample can be taken from the defendant if a case comes to trial. The National DNA Database Board argues that the samples must be kept for quality control and to check errors. However, samples do not need to be kept permanently for the profiles to be checked; they could be stored only for a limited time period, until an investigation is complete. The Board also argues that keeping samples allows the Database to be upgraded to use more detailed profiles in the future. Although this was necessary when the Database was first set up, it is likely to be costly and impracticable now the Database is so large. The Government’s advisory body, the Human Genetics Commission, concluded that the reasons given for retaining DNA samples are “not compelling” and the Home Office has recognised that retaining samples is “one of the most sensitive issues to the wider public”.

**Inadequate oversight and misuse**

Freedom of Information requests by GeneWatch UK to the National DNA Database Board have shown that since the year 2000, 19 research projects have been allowed and 14 refused. The requests revealed that stored DNA samples have been used for genetic studies of the male Y-chromosome, without the consent of the people involved, as part of a controversial attempt to predict ethnicity from DNA. This type of research could also inadvertently reveal other genetic characteristics such as a man’s risk of infertility. Emails supplied to GeneWatch also show that the commercial company LGC, which analyses some DNA samples for the police, has retained its own “mini-database” of DNA records, despite claims that access to the DNA Database is carefully restricted and controlled.

There are also concerns about the use of ‘familial searching’ (trying to trace a suspect through their relatives) and the secret guidelines which govern the use of this approach.
**Potential for errors**

DNA evidence is not foolproof: false matches can occur by chance, especially if the DNA profile from the crime scene is not complete. In addition, new techniques introduce new potential sources of error. For example, the increasing use of Low Copy Number (LCN) DNA analysis – which allows a DNA profile to be extracted from a single cell – has led the Director of the Forensic Institute in Edinburgh to warn that innocent people may be wrongly identified as suspects as a consequence of being on the National DNA Database\(^{27}\) and the judge in the Omagh trial to criticise specialist evidence on this technique as contradictory.\(^{28}\) LCN analysis and other new techniques such as “DNABeast”,\(^{29}\) increase the sensitivity of DNA analysis (allowing very small samples or mixed samples to be analysed, respectively) but also increase the chance of a false match between a scene of crime DNA sample and an individual’s DNA profile. These difficulties may be exacerbated when these techniques are combined.\(^{30}\) Commercial pressures may also lead forensic service companies to exaggerate the benefits and downplay the limitations of such new techniques.\(^{31}\) Recently, an investigation has been launched into possible limitations in the analysis of some crime scene DNA samples\(^{32}\) and the Government has admitted there is a ‘regulatory gap’ in standard setting for forensic science.\(^{33}\)

**The role of councils and Police Authorities**

\[\text{\textquoteleft\textquoteleft It is important the Police maintain the support and consent of the public in order to effectively undertake their duty to investigate crime. Any proposed legislation to introduce blanket retention will serve to diminish this support\textquoteright\textquoteright}. \text{The Police Liaison Officer, Scottish DNA Database, 2005.}^{11}\]

Police Authorities and councils are responsible for holding the police budget and deciding how much council tax should be raised for policing. Permanent storage of DNA from people against whom no further action is taken, or who are convicted of minor offences, is a growing part of police budgets. Taking DNA from everyone arrested from the age of ten, also adds to costs compared to collecting DNA only from people charged with an offence. However, an independent assessment of the cost-effectiveness of DNA collection and retention in tackling crime has never been published.\(^{34,35}\)

\[\text{Permanent storage of DNA from people against whom no further action is taken, or who are convicted of minor offences, is a growing part of police budgets}\]

\[\text{Commercial pressures may lead forensic service companies to exaggerate the benefits and downplay the limitations of new techniques}\]

\[\text{DNA evidence is not foolproof}\]
Although the DNA Database can increase the number of detections, and potentially convictions, it has long been recognised that the costs need to be weighed against other policing methods, in order to ensure best value. In 2000, Her Majesty’s Inspectorate of Constabulary reported huge uncertainty about the costs per match (with estimates ranging from £443 to £13,114) and per detection (estimates from £788 to £2,342), depending on how these costs were calculated.\textsuperscript{36} Although a 2006 Home Office Report provided some new figures on the unit costs of \textit{processing} each sample\textsuperscript{11}, this sheds little light on costs or cost-effectiveness, because it does not include police time. It also does not include the costs of \textit{storing} samples permanently. When the shadow home secretary asked for the costs of sample storage, he was told that they are commercially confidential.\textsuperscript{37} Although this makes a proper assessment of cost-effectiveness impossible, it is unlikely that paying commercial companies to store all DNA samples permanently represents best value.

Police Authorities are also responsible for holding Chief Constables to account on behalf of the local community. As well as making sure local people get best value from their police, this means ensuring that trust in policing is maintained. Rapid and far-reaching changes in legislation have been made with very little public debate. The latest changes to the law in England and Wales, which came into effect in April 2004, were introduced via a late amendment to the Criminal Justice Bill tabled in late March 2003. This happened less than a week before the Bill was debated in the House of Commons and at a time when the change was least likely to attract public attention and debate (during the first week of the war against Iraq).

In Scotland, unlike England and Wales, there was a consultation on proposals to keep the DNA of innocent people permanently, and the plan was rejected by the Scottish Parliament (Box A). Brent Council recently voted unanimously to call on the police to adopt more restrictive practices on police collection and retention of DNA (Box B). These examples suggest that a more democratic process of decision-making would be likely to lead to greater restrictions on police collection and retention of DNA.
**Box A: The Scottish Parliament**

Although DNA is kept permanently in Scotland from some people convicted of relatively minor offences (such as Breach of the Peace), the Scottish Parliament rejected permanent retention of DNA from people who are not convicted of any offence, in May 2006. Concerns expressed by Committee members included the lack of evidence that the policy had contributed to tackling crime in England and Wales; the privacy issues associated with keeping DNA samples; and the erosion of the presumption of innocence. Members of all political parties expressed the view that permanent retention of innocent people’s DNA was disproportionate to the needs of the criminal justice system. Instead, police powers were expanded to allow temporary retention (for up to 5 years) from a much smaller number of people who had been charged but acquitted of a serious violent or sexual offence. Although the Labour Party in Scotland has recently stated that it will bring Scottish legislation into line with England and Wales if it wins next May’s elections, this is opposed by all its potential coalition partners.

**Box B: Brent Council**

Brent Council has been particularly concerned about the evidence that more than a third of black male population are on the Database. A motion passed unanimously by Brent Council in January 2007 called for:

- Brent Police, and the Metropolitan Police, to end the practice of automatically taking DNA samples on arrest;
- an end to taking DNA samples for Fixed Penalty and Public Order offences – which has contributed to the heavily imbalanced racial profile of the register;
- regular statistics by area detailing the ethnic breakdown of people whose samples have been collected, for monitoring by Police Authorities and local partnerships;
- a national framework to govern collection of DNA samples, removing the discretion of local Borough Commanders to require these automatically;
- the destruction of DNA records held on innocent people who have not been charged with or found guilty of any offence, and measures to monitor this.
Conclusions

GeneWatch UK believes that there are important changes that could be made that would improve safeguards for human rights and privacy without compromising the role of the DNA Database in tackling crime. A better balance would be struck by:

- destroying individuals’ DNA samples once an investigation is complete, after the DNA profiles used for identification have been obtained;
- an end to the practice of allowing genetic research using the Database or samples, so that research is limited to performance management and database improvements;
- better governance, including an independent regulator;
- public and parliamentary debate before new uses of the Database, such as familial searching, are introduced;
- a return to taking DNA on charge rather than arrest, except where it is needed to investigate a specific offence;
- reintroducing a system of time limits on how long people are kept on the Database – so that only DNA profiles from people convicted of serious violent or sexual offences have their records kept permanently.

Councils and Police Authorities are responsible for ensuring that their police force delivers best value and maintains the trust of local people. They are therefore well-placed to investigate whether keeping the DNA of large numbers of innocent people has been cost-effective, and to develop more considered local policies which attempt to balance the value of the Database in tackling crime with the potential threats to privacy and rights.


House of Commons Hansard. 11 Dec 2006 : Column 829W.

House of Commons Hansard, 12 Jan 2006 : Column 834W.


The National DNA Database Annual Report 2002-03.


When the Database was first set up the policy was to retain records on the DNA Database for the same period as a person’s criminal record, rather than permanently. Home Office Circular 16/95.


GeneWatch UK, 60 Lightwood Road, Buxton, Derbyshire, SK17 7BB
Phone: 01298 24300
Email: mail@genewatch.org  Website: www.genewatch.org