



Home Office



NATIONAL DNA DATABASE STRATEGY BOARD ANNUAL REPORT 2012-13

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DATA

Complete NDNAD data for 2012-13 and previous years has been published alongside this report at: www.gov.uk/government/organisations/home-office/series/dna-database-documents

Ministerial Foreword

It is with great pleasure that I write the foreword to the National DNA Database annual report for the second time. At the time of the first report, I was able to set out the new principles by which the National DNA database was to operate. From being a database that collected the DNA samples and profiles of anybody arrested and retained them indefinitely, it would now operate proportionately taking into account issues such as guilt or innocence and the rights of children. At the time however I could offer little in terms of concrete actions that had been undertaken to achieve these goals.

It is particularly satisfying then to be able to report that we have now achieved the goals that we set ourselves. Over 1.7 million DNA profiles taken from innocent people and from children have been removed from the DNA database.

The destruction of all 7,753,000 DNA samples is a significant step to protect the genetic privacy of people in the United Kingdom.

All deletions of material under the Protection of Freedom Act were completed at the end of September, ready for commencement of the Act on 31 October. There will be an interim period, as agreed by Parliament, while processes are further optimised.

The database remains an important tool for the police in solving crime. This report describes several case examples where the worst offenders have been caught and convicted following a database match. These examples are just a fraction of the serious crimes that the database continues to solve.

We have transformed the DNA database from one that infringed the privacy of over a million innocent citizens to one that is proportionate and still effective. In this we hope also to have transformed it from a contentious system that was seen as a threat to our liberties, to one that enjoys wide public support as an essential tool to fight crime.

Lord Taylor of Holbeach CBE

Parliamentary under Secretary of State for Criminal Information

Strategy Board Chair Foreword

In my introduction to the last annual report I spoke about the considerable changes going on in the world of forensic DNA. The last year has continued to involve significant developments in this area, particularly in terms of legislation, technology, and governance. At times these changes have certainly presented challenges, but there have also been opportunities to improve the way DNA is used to fight crime and protect people.

This year we have seen the staff who run the National DNA Database (NDNAD) move from the National Policing Improvement Agency to the Home Office. As with any such major structural change there has been a huge amount of work to do, in ensuring that day to day performance has been maintained throughout the major organisational changes. I am therefore very grateful to the dedicated staff at the NDNAD, as they have certainly succeeded in this regard.

The DNA Strategy Board has once again overseen a significant amount of technological development work to ensure that the NDNAD becomes ever more effective. For example this report explains how 'DNA Boost' technology will allow better results to be obtained when mixed DNA profiles are recovered from crime scenes. As with any new process it has required substantial preparation and rigorous testing to ensure that it is effective, reliable, and can stand up to the scrutiny required by the criminal justice system.

However the most significant scientific work has taken place to prepare for the implementation of more sensitive DNA kits, which will replace the tried and tested SGMPlus system. When implemented this will enable profiles to be obtained from even smaller traces of DNA, or where the material has degraded, and will mean that the NDNAD is an even more powerful crime fighting tool. This year a significant amount of the crucial background work, including IT development and scientific validation, has taken place ready to facilitate the implementation of this enhanced system.

In addition to all of the above work, the Protection of Freedoms Act is re-writing the rules on retention of DNA, to ensure that the human rights of the innocent are fully protected. Prior to the full implementation of this act, the DNA Strategy Board has worked closely with colleagues in many other organisations to prepare for the changes. For example just one part of the work carried out this year is the deletion of over a million DNA profiles from the NDNAD in preparation for the act's implementation. The scale of this preparation work should not be underestimated, and my thanks go to everyone who has been involved in this work.

Despite the significant changes which are discussed in this report, I am delighted to be able to announce that once again the NDNAD match rate on loading a profile from a crime scene has risen. In 2012-13, of these crimes 61.4% matched a profile held on the database. This is the highest annual rate yet, and shows how the NDNAD continues to find ways to be more effective at tackling crime and protecting the public. My thanks therefore go to all members of the Strategy Board, and everyone we have worked with, whose hard work has made this possible.

Amanda Cooper

Director of Information, Science and Technology, Thames Valley Police and

Chair of the National DNA Database Strategy Board

PART 1: NATIONAL DNA DATABASE (NDNAD)

1.1 About the National DNA Database

The National DNA Database holds electronic DNA records (DNA profiles) taken from individuals and crime scenes and provides the police with matches linking an individual to a crime scene. Since it was set up in 1995 the NDNAD has produced more than 446,000 matches to crimes.

DNA profiles

The NDNAD holds 2 types of DNA profile:

1. Individuals

The police take a DNA sample from every arrested individual, using a swab on the inside of the cheek. The DNA sample is then sent to an accredited laboratory, which analyses the sample to produce a DNA profile – a string of 20 numbers representing only a tiny fraction of that individual's DNA, but which allows that individual to be identified (the chance of two unrelated individuals having the same DNA profile is more than a billion to one). A DNA profile also includes an X/Y chromosome marker to indicate gender, for example:

14,18; 30,31.2; 16,17; 13,14; 28,11; 12,14; 19,23; 6,7; 12,14; 21,23; X,Y

The DNA profile is loaded to the NDNAD where it can be searched against crimes.

2. Crimes

DNA is recovered from crime scenes by police Crime Scene Investigators. Nearly every cell in the body contains a complete copy of your DNA, so there are many ways in which an offender may leave their DNA behind at a crime scene, for example in blood or from skin cells left behind on clothing or even just by touching something. The CSIs look in places where the perpetrator of the crime is most likely to have left traces of their DNA behind. Items likely to contain traces of DNA are sent to an accredited laboratory for analysis. If the laboratory recovers DNA, they will produce a crime DNA profile which can be loaded to the database for searching.

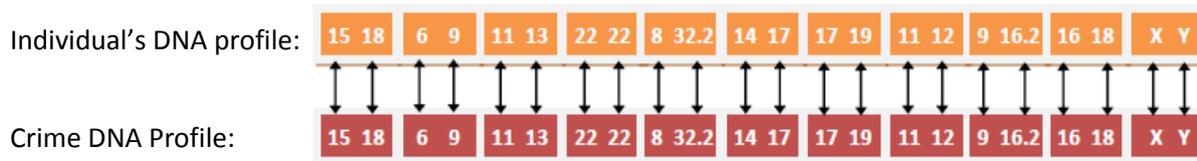
CASE EXAMPLE: METROPOLITAN POLICE

In August 2012, a woman took a taxi home from central London with a friend. When the friend got out to ask for directions, the taxi driver drove off, locking the woman inside the car. He then raped her. The police found the attacker's DNA on the victim, and searched the DNA profile against the National DNA Database. The DNA profile matched a man already on the database – Ellie Feghaly. Mr Feghaly was found to have been operating as an unlicensed minicab driver and was arrested a few days after the attack and charged with rape. In February 2013 he was found guilty of the offence and sentenced to nine years in prison.

NDNAD matches

The database searches the DNA profiles from crimes against the DNA profiles from individuals. A match occurs when the 20 numbers (and gender marker) representing an individual's DNA are an exact match to the 20 numbers representing the DNA left at the crime scene.

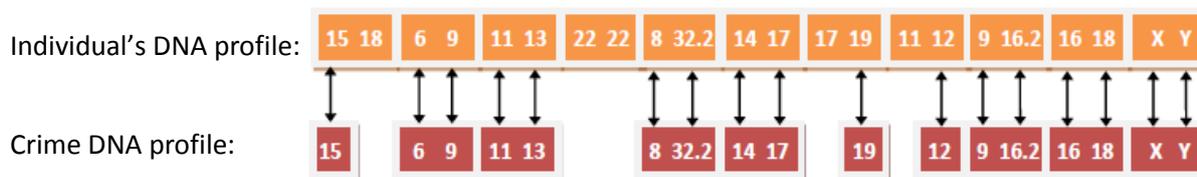
NDNAD Profile Match



When a match is found, it gives the police a possible suspect for the crime. A database match might also identify a witness, or eliminate other people from the police investigation.

Sometimes it is not possible to recover a complete DNA profile from the crime scene – for instance because the offender has tried to remove the evidence, or because DNA has been partially destroyed by environmental conditions. In these circumstances, a partial crime profile is obtained, and searched against individuals on the NDNAD, producing a partial match:

Partial Match



Partial matches provide valuable leads for the police, but depending on how much of the information is missing the result may be interpreted with less certainty than a full match.

DNA and related individuals

One half of an individual's DNA profile is inherited from their father, and the other half from their mother. As a result, the DNA profiles of a parent and child or two siblings will share a significant amount of their DNA profiles.

This allows a familial search of the database to be carried out, to look for possible close relatives of the offender in cases where the police have found the offender's DNA at the crime scene but the offender themselves does not have a profile on the database. Following a familial search, the NDNAD produces a list of possible relatives of the offender. The police will use other intelligence such as age and geography to narrow down the list before investigating further. The DNA samples (biological material) of individuals on the list are sometimes used to speed up the investigative stage, but the search itself is a computerised operation which only involves the DNA profiles on the NDNAD. Familial searches are used in the most serious crimes only, and each search requires approval from the NDNAD Strategy Board. A total of **33 familial searches** were carried out in 2012-13. Since 2003 familial searching has identified a relative, leading the police to the suspect, in 54 of the most serious crimes where the police had no other leads, producing 38 convictions.

CASE EXAMPLE: NORFOLK POLICE

In June 2011 an intruder entered a house in Ipswich and subjected the sole female occupant to a serious sexual assault. During the ordeal, the woman managed to scratch her attacker, leaving his DNA under her fingernails. The DNA profile was searched against the National DNA Database but did not match anyone on the database. Due to the severity of the crime, a familial search of the NDNAD was carried out, to look for individuals on the database with close familial links to the offender. This search identified a relative of the offender, leading the police to the offender himself - Hilland Matthews. He was arrested in 2012, and his DNA sample taken which produced a direct match with the DNA found under the victim's fingernails. In February 2013, Hilland Matthews was jailed for nine years for the attack.

The inherited nature of DNA means that identical siblings will share the same DNA profile and, as at 31 March 2013 there were **6,847 sets of identical twins** and **ten sets of identical triplets** on the NDNAD. However identical siblings have different fingerprints – so a comparison of fingerprints can be used to differentiate them.

Who runs the NDNAD?

Since 1 October 2012 the NDNAD has been run by the Home Office on behalf of UK police forces. Prior to that, it was run by the National Policing Improvement Agency. The database itself and the people who work on it remained unchanged by the move. Less than 50 vetted Home Office staff have access to the database. Police forces own the records on the database, and receive notification of any matches, but do not have access to the database.

The NDNAD Strategy Board

The Strategy Board oversees the operation of the NDNAD, ensuring that it provides an effective service for the police, uses the most suitable technology and operates in an ethical manner. The Strategy Board also ensures transparency by providing information to the public. The Strategy Board is chaired by the national policing lead for DNA and has representatives from the Home Office, Scottish police, Northern Ireland police/Department for Justice, the Information Commissioner, Forensic Science Regulator and DNA Ethics Group. Following the introduction of Police and Crime Commissioners (PCCs) in November 2012, the Board invited PCC representation. This took effect in June 2013.

DNA Ethics Group

The Ethics Group is an independent group, set up in 2007 to provide advice to Ministers and the Strategy Board on the ethical operation of the National DNA Database. In its 2012 Annual Report, the Ethics group made the following three recommendations:

1. The Home Office should collate evidence that demonstrates the effectiveness of the new retention regime [under the Protection of Freedoms Act] and report the findings on a regular basis.
2. In particular, the Home Office should collect data on a routine basis on what extent retaining the profiles of the convicted helps solve crimes. This evidence should be held for qualifying and non-qualifying offences.
3. The National DNA Database Strategy Board should aim for more transparency by involving more lay members in its governance structure.

The Home Office will collect data on the number of DNA profiles retained under each of the different powers given by the Protection of Freedoms Act (including for convicted individuals), and the number of matches to crimes resulting from this retention.

The Governance structure of the Strategy Board will be published and laid before Parliament in November, as required by the Protection of Freedoms Act.

Protection of Freedoms Act

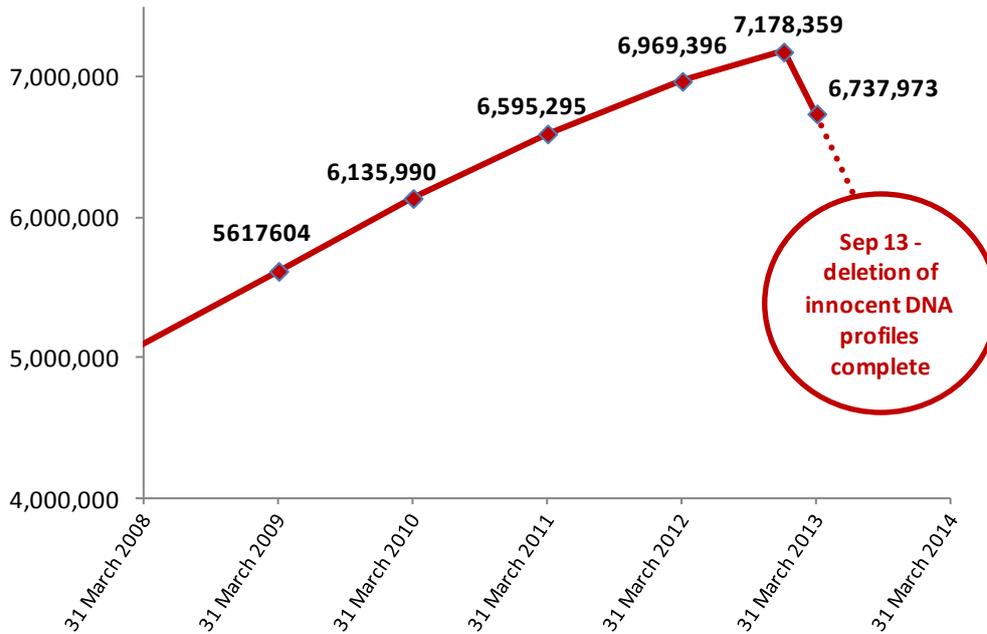
The Protection of Freedoms Act changes the law to prevent the permanent retention of innocent people's DNA profiles. It significantly improves the genetic privacy of people in Britain by requiring the destruction of all DNA samples taken for profiling for the database. The Act will come into force on 31 October 2013, but work to implement the Act by destroying DNA which the new law will not allow to be retained is already complete. Part 2 of this report tells you whose DNA can be kept and for how long under the new law, and explains how the changes have been implemented in time for October 2013. Part 2 goes beyond the period 2012-13 to which the rest of the report is limited.

2.2 Who is on the National DNA Database (NDNAD)?

How many profiles

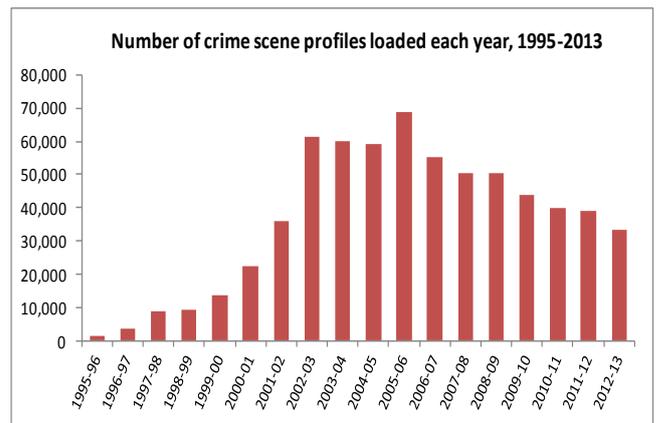
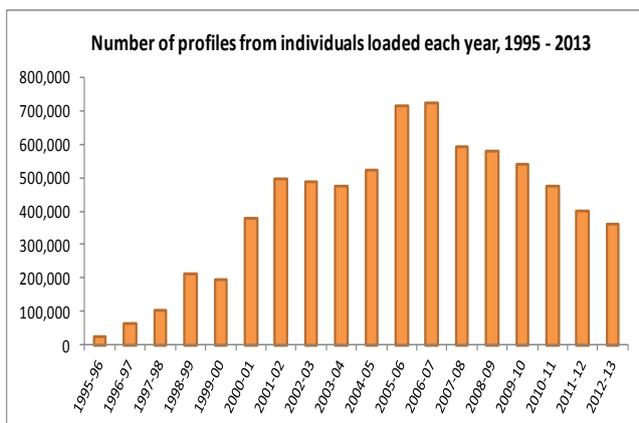
As of 31 March 2013 the NDNAD held **6,737,973** DNA profiles from individuals, and **428,634** DNA profiles from crime scenes.

NUMBER OF DNA PROFILES FROM INDIVIDUALS HELD ON NDNAD, 2008 - 2013



In the year 2012-13 **362,319** new DNA profiles from individuals were added to the database.

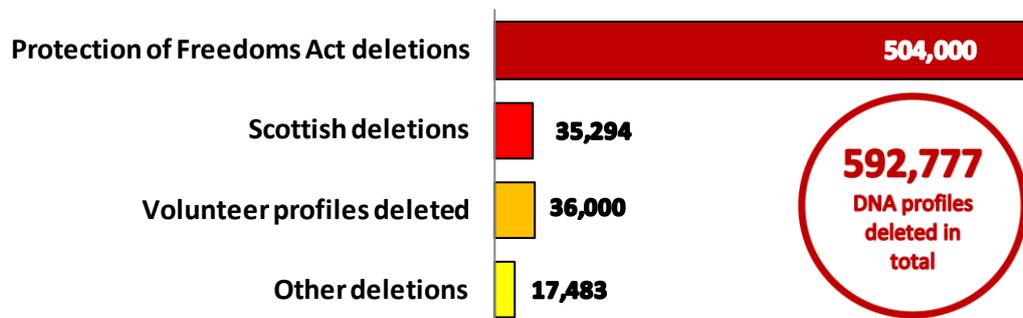
33,190 new profiles from crime scenes were added.



Some individuals have more than one profile on the NDNAD, for instance because they were sampled twice under different names. 11.6% of the profiles on the NDNAD are duplicates of an individual already sampled. Allowing for these duplicates, the estimated number of individuals on the NDNAD is **5,953,810**.

In 2012-13, there were **592,777** DNA profiles deleted from the NDNAD. The majority of these were deleted as part of work, begun in January 2013, to delete DNA profiles of innocent people in preparation for the Protection of Freedoms Act coming into force (see Part Two of this report). DNA profiles taken by Scottish police forces are deleted from the NDNAD according to Scottish law. A number of profiles taken from volunteers were deleted as part of a program to remove volunteers from the NDNAD – see ‘New Technology & Developments’.

DNA PROFILES DELETED FROM THE NDNAD 2012-13



Nationality

The NDNAD holds profiles from all UK police forces including England, Wales, Scotland and Northern Ireland – but only the profiles belonging to England and Wales forces are subject to the Protection of Freedoms Act. Scotland, Northern Ireland and other UK law enforcement agencies such as the Channel Islands have their own laws on DNA retention. Scotland and Northern Ireland have their own separate DNA databases, but profiles loaded to these databases are also loaded to the NDNAD due to the likelihood of offenders moving between UK countries.

PROFILES RETAINED ON THE NDNAD BY UK COUNTRY, 31 MARCH 2013

Country	Crimes	Individuals	
England	390,393	5,923,628	DNA profiles subject to the Protection of Freedoms Act
Wales	18,077	346,085	
Scotland	15,436	322,341	DNA profiles subject to country's own retention laws
N Ireland	3,148	106,920	
Other *	1,580	38,999	
NDNAD TOTAL	428,634	6,737,973	

*Other includes police forces for the Channel Islands, Isle of Man, and military services and additional law enforcement bodies such as HM Revenue and Customs.

Demographics

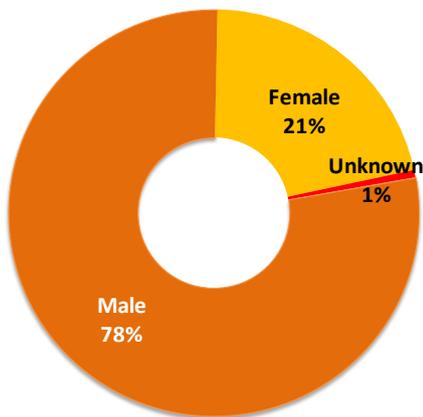
The individual DNA profiles held on the NDNAD come from people who have been arrested, so the composition of the NDNAD reflects that group and not the general population of the UK. For instance only half of the UK population is male – but the majority of NDNAD profiles belong to males, because the majority of people arrested are male. A breakdown of the individual profiles on the NDNAD by age, gender and ethnicity is below.

This data is published quarterly on the DNA database web page (link below). More comprehensive data, which can be compared to census data on the age, gender and ethnicity of the population as a whole, is provided as part of the datasets published alongside this report:

www.gov.uk/government/organisations/home-office/series/dna-database-documents

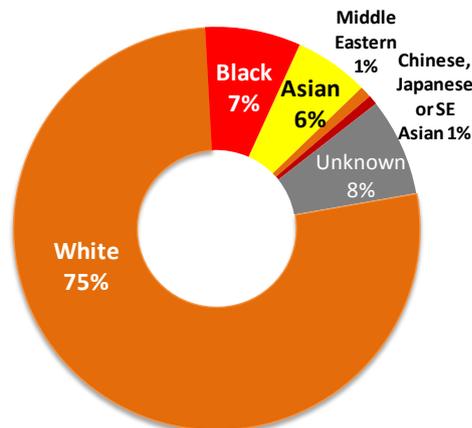
PROFILES ON THE NDNAD, 31 MARCH 2013

GENDER



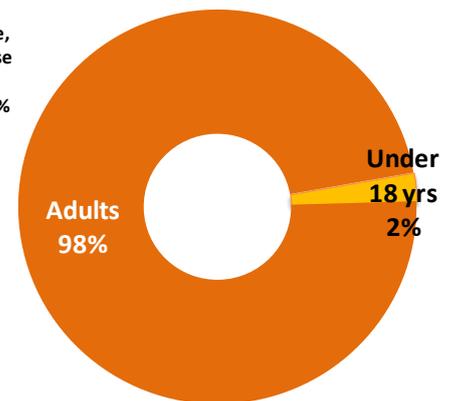
Gender	Number of profiles
Male	5,261,552
Female	1,436,450
Unknown	39,971
Total	6,737,973

ETHNICITY



Ethnicity (police reported)	Number of profiles
White – North European	5,044,398
Black	515,621
Asian	401,190
White - South European	137,715
Middle Eastern	62,242
Chinese, Japanese, SE Asian	51,664
Unknown	525,143
Total	6,737,973

AGE



Age on 31 March 2013	Number of profiles
Under 10	0
10-15	47,172
16-17	109,977
18-20	369,373
21-24	831,461
25-34	2,183,384
35-44	1,496,219
45-54	1,051,820
55-64	436,881
65 & Over	211,396
Age Unknown	290
Total	6,737,973

CASE EXAMPLE: MERSEYSIDE POLICE

In July 2011, four armed men confronted security guards delivering cash to an Asda supermarket in Liverpool and stole £92,000 in cash. As the robbers drove off in their stolen get away vehicle, they dropped a cash box. One of the robbers reached to retrieve it and in the process his watch was knocked off. A member of the public retrieved the watch and handed it in to police. Forensic analysis found the robber's DNA on the watch. The DNA profile was searched against the National DNA Database and identified Sam Millar. Sam Millar pleaded guilty to conspiracy to commit robbery and in March 2013 was sentenced to 8 years in prison. One of his accomplices was also caught and sentenced to 11 years.

2.3 How many crimes does the NDNAD solve?

The NDNAD matches DNA taken from individuals to DNA found at crime scenes, giving the police valuable information identifying a possible suspect. The crime will not always be solved, and further evidence will be needed to secure a conviction, but the NDNAD's role is to provide the police with DNA matches.

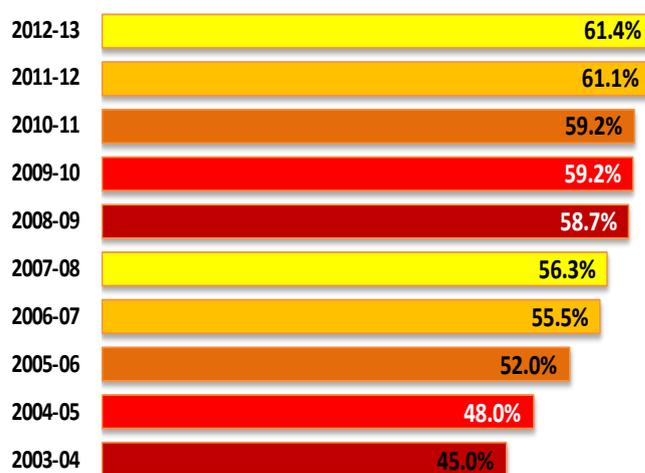
Match rate

When a DNA profile found at a crime is searched against the NDNAD, there is a **61%** chance that the database will produce a match. This match rate is one of the highest in Europe, and has increased year on year as the database grows more effective. The table below shows the types of crimes which were loaded in 2012-13 – the database provided a possible suspect for 61% of these.

CRIMES LOADED TO THE NDNAD, 2012-13

Crime	Number of crime profiles loaded
Burglary	15,268
Vehicle crime	4,396
Criminal Damage	3,429
Drugs	1,779
Violent crime	1,691
Theft	1,595
Robbery	1,532
Rape	625
Murder, Manslaughter & Attempts	433
Other sexual offences	262
Traffic (including fatal)	253
Arson	250
Fraud	207
Firearms	196
Public order	127
Abduction & kidnapping	79
Blackmail	7
Explosives	4
Other	1,057
TOTAL	33,190

NDNAD MATCH RATE ON LOADING A CRIME, 2003-13



Further matches will occur when a new individual is added to the database, and matches to a crime already on the database. As of 31 March 2013 there were **161,766** crimes on the database which have yet to be matched and could be solved if the perpetrator's DNA was taken and added to the database. Everyone who is arrested will have their DNA searched against existing crimes on the database – even if their profile is to be deleted.

Number of Matches

The NDNAD generates matches to crimes following routine loading of a crime scene profile or an individual's profile to the database. It can also produce matches using specialised search techniques, for instance an urgent search service is available 24 hours a day for use in the most serious crimes where the police need results within hours.

The NDNAD produced the following matches in 2012-13:

Matches from urgent searches
211

The NDNAD provided 211 matches from urgent searches used for serious crimes – including **55 homicides** and **60 rapes**. The full breakdown of urgent matches by crime type is in the table below.

Matches from routine loading: crime-person match
24,894

The NDNAD gave the police a routine match to a possible suspect in 24,894 crimes in 2012-13. This included **183 homicides**, and **466 rapes**. The full breakdown of these matches by crime type is in the table below.

Matches from routine loading: crime-crime match
1,247

In a further 1,247 crimes, the database provided a match to another crime (rather than an individual). This intelligence linking crimes can help identify serial offenders.

Matches from partial profile searches
1,842

The NDNAD can also search partial crime profiles which are insufficient for routine loading. These searches produced matches in a further 1,842 crimes.

ROUTINE MATCHES BY CRIME TYPE 12-13

Crime	Number of crimes with an NDNAD match
Burglary	10,976
Vehicle crime	3,772
Criminal Damage	2,905
Violent crime	1,293
Drugs	1,254
Theft	1,227
Robbery	1,037
Rape	466
Traffic (including fatal)	243
Murder, Manslaughter & Attempts	183
Arson	172
Other sexual offences	171
Fraud	151
Firearms	146
Public order	92
Abduction & kidnapping	46
Explosives	9
Blackmail	4
Other	747
TOTAL	24,894

URGENT MATCHES BY CRIME TYPE 12-13

Crime	Matches
Rape	60
Murder, Manslaughter and Attempts	55
Robbery	23
Other sexual offences	19
Burglary (including aggravated)	12
Firearms	11
Violent crime	7
Abduction and kidnapping	4
Theft	3
Traffic (including fatal)	2
Arson	1
Blackmail	1
Criminal Damage	1
Drugs	1
Other	11
TOTAL	211

Crimes solved

Data collected from police forces in England and Wales shows that in 2012-13, **19,147** crimes were solved ('detected') following an NDNAD match. **40%** of crimes loaded to the NDNAD are solved - for crime overall, the detection rate is just 29%. The NDNAD helps solve a significant number of the crimes searched against it, but in the majority of crimes, the likelihood of DNA evidence being found is low. The police send a crime scene investigator to look for forensic evidence in **16%** of crimes. Theft of vehicle and domestic burglary are two crime types where a large number of crime scene examinations are carried out.

In 2012-13:

All Crime

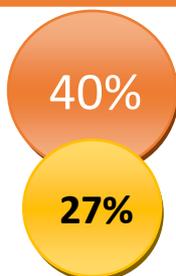
16% of all crimes had a CSI examination

Crimes solved with an NDNAD match available

19,147

Detection rate:

Crimes loaded to the NDNAD



Crimes overall

Theft of Vehicle

32% of vehicle thefts had a CSI examination

Vehicle thefts solved with an NDNAD match

919

Detection rate

Vehicle thefts loaded to the NDNAD



Crimes overall

Burglary (domestic)

92% of burglaries had a CSI examination

Burglaries solved with an NDNAD match

5,363

Detection rate

Burglaries loaded to the NDNAD



Crimes overall

Convictions

Data on the number of offenders convicted with the help of DNA evidence is not recorded. However there are many serious crimes each year where the offender is caught and convicted based on DNA evidence. A few examples have been given throughout this report.

CASE EXAMPLE: BEDFORDSHIRE POLICE

In 1992, a woman was dragged off the street in Stotfold, Bedfordshire, and raped at knife point by a man who threatened to slit her throat. DNA evidence was recovered from the crime scene and added to the National DNA Database but did not match to any individual on the database. In 2012, Daniel Borger was arrested for a minor drugs offence, DNA sampled and added to the DNA database. His DNA matched the DNA found at the crime scene 20 years previously, identifying him as the rapist. Daniel Borger later admitted the offence and in February 2013, was jailed for seven and a half years for the crime.

2.4 Missing and vulnerable persons DNA Databases

The National DNA Database holds DNA profiles taken from arrested individuals and crime scenes. Previously it also held profiles taken in relation to missing persons and from individuals at risk of harm, for the purposes of identifying a body should one be found. These profiles are now held on their own databases, in order to separate DNA profiles given with consent for identification purposes from those taken from arrestees.

Missing Persons DNA Database (MPDD)

The MPDD holds DNA profiles obtained from the belongings of people who have gone missing, or from their close relatives (who will have similar DNA). It also contains profiles taken from the bodies of unidentified people. The database matches missing people (or via their relatives) to unidentified bodies, and can also eliminate a missing person if an unidentified body is found matching their description, helping police investigations and bringing closure for families that are searching for their loved ones. In 2012-13 the MPDD produced **FIVE** matches. Two of these are described below:

CASE EXAMPLE: MISSING PERSON

Male A was reported missing in September 1989, last seen on a beach having previously been placed in care due to concerns over suicidal intentions. In October 1989 a body was washed up on a beach in another part of the UK. However no link was made due to discrepancies in the physical descriptions and the body was assumed to belong to another missing male B. However in May 2011 DNA was obtained from the teeth of the washed up body and it was found not to be a match to male B. A force review was conducted on the missing male A and the family were approached for a kinship DNA sample. This was submitted and in July 2012 the match was confirmed, finally identifying the body washed up in October 1989 as male A reported missing the previous month.

CASE EXAMPLE: MISSING PERSON

A female was reported missing in February 2011 after her bicycle was found chained to the railings of a bridge. A search of her home address recovered a suicide note. A DNA profile was submitted to the MPDD in May 2011. In February 2012 remains were found washed up at a local beauty spot not far from the bridge; the force submitted a DNA profile to the MPDD for comparison against missing individuals and a match was found, identifying the woman reported missing in 2011.

Vulnerable Persons DNA Database (VPDD)

The VPDD holds DNA profiles of people who are at risk of harm, for instance due to child sexual exploitation or honour based violence, and have asked for their profile to be added. If the person subsequently goes missing, their profile can be checked against the main NDNAD to see if they match to any material such as blood or an unidentified body found at a crime scene, helping the police investigate their disappearance. There was 1 request to compare records held on the Vulnerable Persons DNA Database with records on the National DNA Database between 1 April 2012 and 31 March 2013.

In 2012-13 the first review of DNA profiles held on the VPDD was performed in order to establish whether an individual remains at risk of harm and their profile should, therefore, be retained. Of the 651 records reviewed 272 were deleted, leaving a total of **1,769** profiles retained on the VPDD as at 31 March 2013. A further 213 profiles have since been deleted as part of the review.

2.5 Technology and developments in 2012-13

The NDNAD is constantly adapting to incorporate new technology and opportunities, which involves significant work in developing and testing these changes to ensure they meet the necessary standards. The NDNAD also responds to any developments which could impact on its effectiveness.

Moving to enhanced DNA testing technology

The NDNAD Unit in the Home Office have been running a project to co-ordinate the introduction of an enhanced DNA test to produce DNA profiles. The current DNA test, 'SGMPlus', used to generate DNA profiles for loading to the NDNAD, targets ten areas of DNA as well as a gender marker. The new DNA tests target an additional six areas of DNA. These additional target areas will increase the discriminating power of DNA matches on the NDNAD, and allow better, more complete DNA profiles to be obtained from crime scenes where DNA evidence has become degraded or is only present in small quantities.

In autumn 2012 the NDNAD Strategy Board authorised the use of a number of DNA test kits which are compatible with the new technology. This followed a study comparing the compatibility of the tests with each other and SGMPlus, to ensure the results were accurate and consistent. 1,327 DNA profiles taken from volunteers were compared across each of the test kits. In collaboration with the United Kingdom Accreditation Service (UKAS), the NDNAD Unit is preparing the technical standards and assessment processes for forensic laboratories to be accredited against, in line with the requirements of the Forensic Science Regulator Codes of Practice, to ensure the new technology is used effectively.

Development of new NDNAD software is underway to allow loading of DNA profiles obtained using the new tests to the database, complete with a thorough testing, validation and implementation programme. The use of the new DNA test technology will be fully implemented by summer 2014.

As part of the Project a statistical study is being undertaken to support the calculations of the strength of a DNA match for criminal investigations and court reporting activity. This study is generating data from appropriate population groups within the UK as deduced from the UK Census of 2011 and will be complete by 2014.

DNA Boost

In December 2012, the NDNAD Unit gained ministerial approval to allow for specialised searches of mixed DNA profiles (where more than one person's DNA is contributing to the result). This new 'DNA Boost' technology allows the perpetrator's DNA profile to be obtained in cases where it is mixed up with the victim, bystanders or other offenders. This will be available to the police via the NDNAD in June 2013. Laboratories must have authorisation to use the new technology - 2 laboratories were going through the authorisation procedure in 2012-13.

Biometric Vetting

Following a change to Police Regulations in August 2012, the NDNAD Unit began supporting the police in performing pre-employment checks of prospective police officers against the National DNA Database. Over **1,200** searches were performed in 2012-13, with **35** positive matches being communicated back to forces. It is for forces to decide how to act on these matches.

Volunteer Review

In 2012-13, the NDNAD unit completed a review of the volunteer records held on the NDNAD. The aim of the review was to record the sampling reason for all volunteer records, with one of the following actions taken:

- Retention of the record on the NDNAD
- Deletion of the record from the NDNAD
- Transfer of the record to the VPDD or MPDD (Vulnerable Persons DNA Database, and Missing Persons DNA Database)

This ensures that only those volunteer records which need to be retained on the NDNAD and where consent has been given by the volunteer are kept.

In total **41,000** volunteer records were deleted from the NDNAD as part of this review, leaving 2,098 records retained from volunteers from Scotland, 1,968 retained due to the individual being on the sex offenders register, 471 records transferred to the VPDD and 16 records transferred to the MPDD. Some of the 41,000 records were deleted prior to 2012-13 as the review began before that period.

Cellmark Contamination

In 2012-13 a DNA sample contamination incident was identified at one of the forensic laboratories (Cellmark), which was raised to the Chair of NDNAD Strategy Board and the Forensic Science Regulator. Following an investigation into the issue, it appears that the root cause of the problem was a handling error by the laboratory scientist during the dilution process that forms part of the DNA analysis process within the laboratory. The error led to two samples being processed from the one case, rather than two samples from two unconnected cases being processed; this led to one person's DNA profile being matched to two crime scenes rather than just the one. Re-testing confirmed that there were two offenders. The laboratory reviewed 550,000 previous samples and identified 268 for detailed review. No further errors were found, and measures were put in place to prevent it happening again.

CASE EXAMPLE: HAMPSHIRE POLICE

In 1981 a woman was raped at knifepoint as she walked through a park in Basingstoke in broad daylight. No one was caught for the offence at the time. Years later, Hampshire Police sent the evidence collected at the crime scene to be re-examined using modern forensic techniques. Traces of DNA left behind by the attacker were found, and searched against the National DNA Database, which identified Robert Gordon. In February 2013 Robert Gordon was found guilty of rape and sentenced to nine years in prison.

2.6 Security and accreditation

Data held on the NDNAD is kept securely and the laboratories which provide DNA profiles to the NDNAD are subject to continuous assessment.

Access to the NDNAD

Day-to-day operation of the National DNA Database service is the responsibility of the Home Office NDNAD Delivery Unit. The Unit is tasked with making sure that operational activity meets the standards for quality and integrity established by the National DNA Database Strategy Board. In October 2012, the Unit moved from NPIA to Home Office with no adverse impact on the service provided.

Fewer than **50** vetted staff have access to the NDNAD. No police officer or police force has direct access to the information held on the National DNA Database but they are informed of matches made by the database. Similarly forensic science providers, who undertake DNA profiling under contract to the police service and submit the resulting crime scene and subject profiles for loading, do not have direct access to the information.

Forensic laboratories

Any laboratory carrying out DNA profiling work for loading to the NDNAD must be approved by the NDNAD Unit and the NDNAD Strategy Board. This involves continuous monitoring of standards. At the end of March 2013, there were **16** laboratories that were authorised to load to the NDNAD. A further two laboratories were approved to load but have not submitted any DNA profiles to date. In addition two laboratories were going through the authorisation procedure.

FSS Closure

By the time the Forensic Science Service (FSS), the previously Government owned forensic laboratory, closed in March 2012 all work had been transferred to other suppliers. The FSS archive containing exhibits from crimes was transferred to the Home Office.

From April 2012, following the exit of the FSS from the forensic market, the NDNAD Delivery Unit is responsible for investigating any integrity issues raised with the results from profiles loaded to the NDNAD by the FSS before they closed. In 2012-13 **84** investigations were raised on FSS data already loaded to the National DNA Database. This resulted in 90 amendments and 1 deletion of records on the NDNAD.

The NDNAD Unit has taken on responsibility for holding the archive of the original raw DNA profiling results generated by the FSS. In 2012-13, the NDNAD provided **332** of these original results to current forensic laboratories to support the interpretation of DNA results in complex cases.

Forensic Science Regulator

An independent Forensic Science Regulator was appointed in 2008 to set and monitor standards for organisations carrying out forensic analysis for use in court. The required standards are published in the Regulator's Codes of Practice and include accreditation of forensic laboratories to international standards. Every company supplying the police with forensic services as part of the national procurement framework is accredited and meets the standards set by the Regulator.

2.7 Finance 2012-13

The Home Office spent **£1.4 million** in 2012-13 running the National DNA Database on behalf of all UK police forces.

	2012-13	2011-12
INCOME*	£1,073,003	£1,288,471
EXPENDITURE		
Operating costs for the NDNAD Delivery Unit	£1,864,281	£1,831,390
Hosting of the NDNAD system	£326,179	£334,179
Development Costs and NDNAD enhancements**	£322,821	£322,821
TOTAL	£1,440,278	£1,199,919

* Income fell against the previous year because prices of some products were lowered to support forces carrying out spending reviews, and demand was reduced following the closure of the FSS.

**Development costs are exactly the same as the previous year as this reflects staff costs which were unchanged.

CASE EXAMPLE: METROPOLITAN POLICE

In the early hours of 22 June 2012 a man was strangled with a cord in central London. Forensic samples were taken from the murder scene and a DNA profile from the suspected offender was found and loaded to the National DNA Database, but did not match to any individual on the database. A few days later, Ghodratollah Barani was seen acting suspiciously in the vicinity of Buckingham Palace. He was arrested and his DNA sample taken and loaded to the database – where it matched to the DNA found at the scene of the murder a few days previously. Ghodratollah Barani pleaded guilty to manslaughter on the grounds of diminished responsibility and told the Court he had been hearing voices telling him to kill someone so he could become king. In March 2013 he was ordered to be detained in a secure hospital indefinitely.

PART 2: PROTECTION OF FREEDOMS ACT 2012

This section of the report sets out the changes to the law on DNA retention introduced by the Protection of Freedoms Act (PoFA). The Act was passed by Parliament in May 2012, but significant work was needed to ensure the changes were made accurately and to keep police databases running effectively during this process. The details of this work, and the plan for completing it by 31 October 2013 when the Act officially comes into force, are also covered in this part of the report.

The Act covers fingerprints as well as DNA samples and profiles. Fingerprints are subject to the same rules as DNA profiles under the Act – so implementation covers both.

Fingerprints are taken by the police electronically from any individual arrested, and scanned into IDENT1, the national fingerprint database. Unlike DNA, where samples have to be sent to a laboratory, fingerprints can be loaded instantly – allowing police to verify a person’s identity at the police station, and ensure that their DNA profile and arrest details are stored against the correct record.

2.1 DNA and Fingerprint Provisions

The Protection of Freedoms Act includes detailed rules on how long the police may retain an individual’s DNA and fingerprints.

DNA samples

A DNA sample is an individual’s biological material, containing all of their genetic information, not simply the 20 numbers that make up the DNA profiles stored on the database. The Act requires all DNA samples to be destroyed within six months of being taken. This allows sufficient time for the sample to be analysed and a DNA profile to be produced for use on the database.

In complex cases a DNA sample may be retained for longer, in case the defence wish to challenge the evidence in court.

DNA profiles and fingerprints

The retention periods for DNA profiles and fingerprints on the databases under the Act are the same and are given below. Where an individual has more than one arrest on their record, the longest retention period will be applied.

Convictions *

Occurrence	Fingerprint and DNA Retention
Adult – all offences	Indefinite
Under 18 – Qualifying offence**	Indefinite
Under 18 – Minor offence	First conviction: five years (plus length of any custodial sentence), or indefinite if the custodial sentence is five years or more.
Under 18 - Second conviction	indefinite

Non-convictions

Occurrence	Fingerprint and DNA Retention
Qualifying offence** - arrested and charged	Three years plus possible two year extension by court
Qualifying offence** - arrested not charged	None, but in exceptional cases on application to the Biometrics Commissioner, three years retention may be authorised, plus two year extension by court
Minor offence - Penalty Notice for Disorder	Two years
Minor offence – arrested or charged	None – but speculatively searched

***Convictions include cautions, reprimands and final warnings.**

****Qualifying offences are serious violent or sexual offences, terrorism offences and burglary offences. A list of qualifying offences is at Annex A.**

Extensions

As set out above, for qualifying offences the Act allows chief constables to apply for a 2 year extension to the given retention periods if deemed necessary for prevention or detection of crime.

Speculative searches

The Act allows everyone arrested to have their DNA and fingerprints searched once (a 'speculative search') against crimes stored on the databases, to check if they match to any crime already on the database. As soon as the speculative search has been completed, the DNA and fingerprints are deleted unless there is a power to retain as set out above.

Biometrics Commissioner

The Biometrics Commissioner is an independent advisor. In addition to deciding applications to retain DNA from individuals arrested but not charged with a serious offence, the Biometrics Commissioner has a general responsibility to keep under review the retention and use of DNA and fingerprints, including reviewing any applications for retention made on national security grounds. The first Biometrics Commissioner, Alastair MacGregor QC, was appointed on 4 March 2013.

2.2 Implementing the Act

Before the Act can be brought into force, all the DNA and fingerprints taken in the past and stored in laboratories or on databases need to be reviewed, and material which does not meet the retention criteria of the Act destroyed. Alongside this, processes to ensure new material is treated in accordance with the Act must be set up.

Databases

To achieve the above, extensive reprogramming of three police databases is required – the NDNAD, the fingerprint database IDENT1, and the Police National Computer (PNC), which holds details of an individual's arrests and convictions. The PNC system first has to identify those individuals with a DNA profile and/or fingerprints held on the databases. It then analyses each individual's arrest history, and calculates the retention period for that individual's DNA and fingerprints, based on the complex rules set out in the Act (see previous Chapter). Each record is marked with a reason for retention, and an expiry date for the retention period. This information is then sent to the NDNAD and IDENT1 to link with the corresponding record on those databases. Once these markers and links between databases have been established, deletion of the required records is driven by PNC and takes place via an automated process as soon as the expiry date is reached. Extensive testing is undertaken to ensure retention periods are calculated correctly and the right records identified and deleted, and that other functions of the databases are not affected.

Biological material

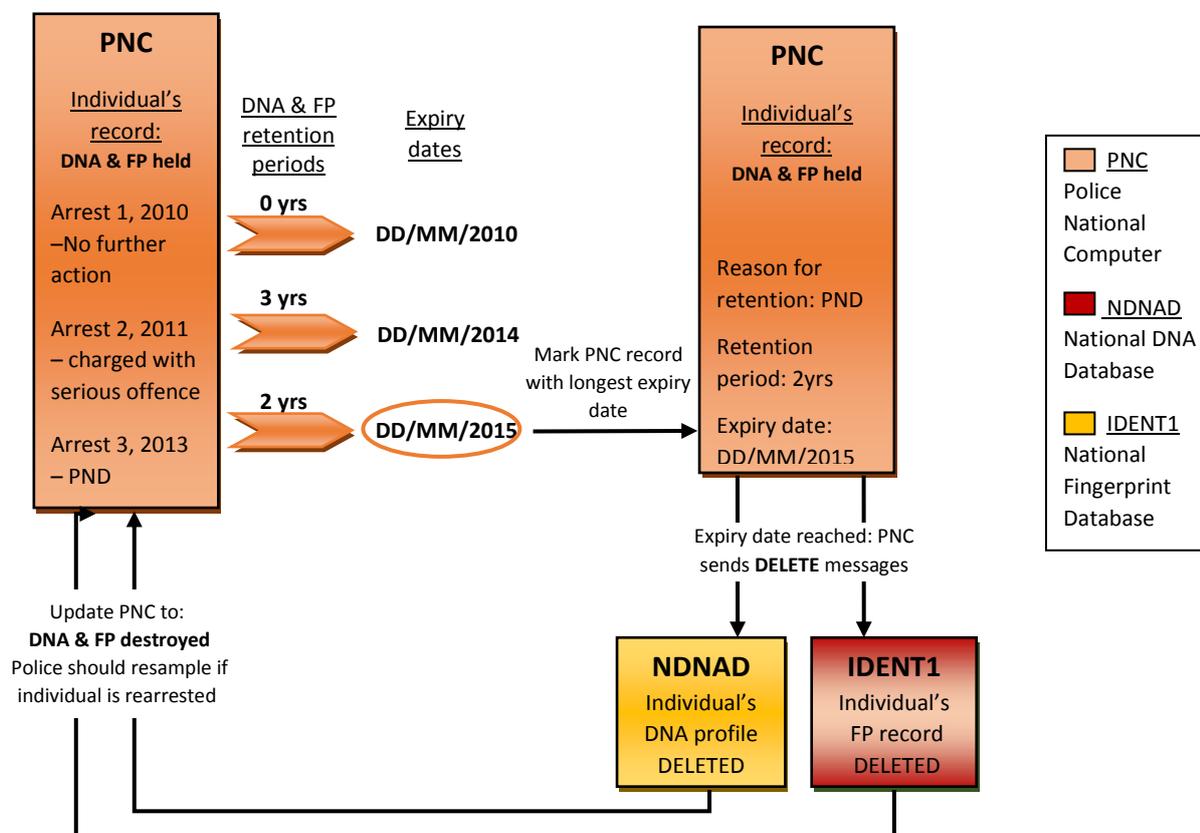
The biological DNA samples from which DNA profiles are derived have also had to be identified and destroyed in accordance with the Act. This required police forces and the forensic laboratories which analyse and store the samples to work to separate the samples which the police need and the Act allows them to keep (predominantly those less than 6 months old which are still being worked on) and those no longer needed which can be destroyed.

Going forward

Once deletion of existing DNA samples, profiles and fingerprints is complete, the processes set up above will operate on a continuous cycle, so that newly taken material is also identified for deletion or retention in accordance with the Act. Therefore when someone is newly arrested, the PNC will check their arrest history and allocate the retention period for their DNA and fingerprints accordingly - if there is no power to retain, they will be checked against crimes on the database before being deleted. If the person's DNA and fingerprints are already held from a previous arrest, the retention period will be updated in light of the outcome of the new arrest.

The process is outlined in the diagram overleaf – this is the same for existing records and for newly taken records going forward:

EXAMPLE OF AUTOMATED DELETION OF DNA AND FINGERPRINTS (FP) UNDER PROTECTION OF FREEDOMS ACT



Priorities

Throughout implementation, there are two priorities:

1. To carefully identify the right material to delete, and the right material to keep.
2. To maintain operational service to the police from the NDNAD, IDENT1, PNC and the forensic laboratories.

The implementation program will complete the necessary work as fast as possible, without compromising these priorities. The timetable is set out on the next page.

2.3 Timetable and progress to date

Before the Protection of Freedoms Act officially commences in October 2013, all DNA and fingerprints held must be in accordance with the provisions of the Act. The timetable for implementing this is set out below. Some of these stages were started (and completed) in the period 2012-13.

December 2012: DNA samples

In December 2012 the destruction of DNA samples (the biological material which contains all of a person's genetic information) began. DNA samples are being destroyed for all individuals, including those convicted of crimes, because of the sensitivity of the material and the fact that it is no longer needed once a DNA profile has been obtained.

Destruction of DNA samples was completed in May 2013.

A total of 7,753,000 DNA samples were destroyed.

January 2013: DNA profiles

In January DNA profiles (the string of 20 numbers derived from the DNA sample) began to be deleted from the National DNA Database. Almost two million DNA profiles needed to be deleted, so deletion was undertaken in phases, starting with profiles that were easier to identify and belonging to individuals who had the most limited contact with the police.

Phase 1 involved the deletion of DNA profiles where no link with the PNC could be established. In practice, there will be no link because the PNC record was deleted under the old 'weeding' system, whereby until 2005 PNC records relating to non-convictions were deleted. These profiles were the easiest to identify and so were the first to be deleted.

Phase 1 was completed in February 2013 with a total of **504,000** DNA profiles deleted from the NDNAD.

Phase 2 involved the deletion of DNA profiles belonging to individuals with a single arrest against their name for which no further action was taken. These profiles were also the simplest to identify and program and were prioritised as they relate to individuals who have only come into contact with the police on one occasion.

Phase 2 began in April 2013 and was completed the same month with **632,000** DNA profiles deleted from the NDNAD.

Phase 3 involves the deletion of DNA profiles belonging to individuals with a single arrest against their name where further action WAS taken, but there is no power to retain their DNA. For instance individuals who were acquitted in court, issued with a Penalty Notice for disorder but the two year retention period has expired, or children under 18 with a single minor conviction against their name where the five year retention period has expired.

Phase 3 began in June 2013 and was completed the same month with **204,000** DNA profiles deleted from the NDNAD.

Phase 4 involves identifying and deleting the more complex cases, where an individual has more than one arrest but no convictions or other circumstances which allow their DNA to be retained. The

PNC must go through all that person's arrests and find the longest retention period before determining whether their DNA profile should be deleted.

Phase 4 began in September 2013 and was completed the same month with **426,000** DNA profiles deleted from the NDNAD.

A total of **1,766,000** DNA profiles were deleted under Phases 1 - 4.

May 2013: fingerprints

Destruction of fingerprints (hard copies and the electronic records on the national fingerprint database IDENT1) began in May 2013. The process is similar to that for DNA profiles, however as fingerprints are taken for each arrest, the records reported here are the number of individuals who have had their fingerprints deleted.

Phase 1 involved the deletion of fingerprints belonging to individuals with a single arrest against their name for which no further action was taken.

Phase 1 began in May 2013 and was completed in June 2013 with **675,000** fingerprint records deleted from IDENT1.

Phase 2 involved the deletion of fingerprints belonging to individuals with a single arrest against their name where further action WAS taken, but there is no power to retain their fingerprints as the retention period has expired.

Phase 2 commenced in July 2013 and was complete the same month with **188,000** fingerprint records deleted from IDENT1.

Phase 3 involved the deletion of fingerprints on IDENT1 where no link with the PNC could be established.

Phase 3 commenced in August 2013 and was completed by September 2013 with **373,000** fingerprint records deleted from IDENT1.

Phase 4 involved identifying and deleting the more complex cases, where an individual has more than one arrest but no convictions or other circumstances which allow their DNA to be retained.

Phase 4 commenced in September 2013 and was completed by 1 October 2013, with **436,000** fingerprint records deleted from IDENT1.

A total of **1,672,000** fingerprint records were deleted from IDENT1 as part of Phases 1 - 4.

September 2013: destruction complete

By the end of September, all DNA and fingerprints which do not meet the criteria of the Act will have been deleted. The deletion process will be operating on a continuous cycle so that new material, or material which has newly reached an expiry date, will be destroyed as well.

October 2013: laws officially come into force

Once all records held by the police, laboratories and databases are in accordance with the new laws, the Act's DNA and fingerprint provisions will officially come into force.

September 2014

The Act allows a one off speculative search against the databases for arrested individuals whose DNA and fingerprints cannot be retained. New technology is being developed for 2014 to allow the databases to complete this search in a matter of minutes, so that records are retained for the shortest time possible. In the interim, nine weeks will be allowed for the speculative search.

2.4 List of qualifying offences under the Protection of Freedoms Act

The following are 'qualifying offences' as referred to in the Protection of Freedoms Act. These are more serious offences, primarily violent or sexual offences, robbery and burglary. In some circumstances DNA and fingerprints taken in relation to qualifying offences will be retained for longer than for non-qualifying (minor) offences.

- (a)murder;
- (b)manslaughter;
- (c>false imprisonment;
- (d)kidnapping;
- (e)an offence under section 4, 16, 18, 20 to 24 or 47 of the Offences Against the Person Act 1861;
- (f)an offence under section 2 or 3 of the Explosive Substances Act 1883;
- (g)an offence under section 1 of the Children and Young Persons Act 1933;
- (h)an offence under section 4(1) of the Criminal Law Act 1967 committed in relation to murder;
- (i)an offence under sections 16 to 18 of the Firearms Act 1968;
- (j)an offence under section 8, 9 or 10 of the Theft Act 1968 or an offence under section 12A of that Act involving an accident which caused a person's death;
- (k)an offence under section 1 of the Criminal Damage Act 1971 required to be charged as arson;
- (l)an offence under section 1 of the Protection of Children Act 1978;
- (m)an offence under section 1 of the Aviation Security Act 1982;
- (n)an offence under section 2 of the Child Abduction Act 1984;
- (o)an offence under section 9 of the Aviation and Maritime Security Act 1990;
- (p)an offence under any of sections 1 to 19, 25, 26, 30 to 41, 47 to 50, 52, 53, 57 to 59, 61 to 67, 69 and 70 of the Sexual Offences Act 2003;
- (q)an offence under section 5 of the Domestic Violence, Crime and Victims Act 2004;
- (r)an offence for the time being listed in section 41(1) of the Counter-Terrorism Act 2008.

And, an ancillary offence relating to any of the above, for example attempting or conspiring to commit the offence, or aiding or abetting the commission of the offence.

Offences to be added (subject to Parliamentary approval of secondary legislation)

- (da)an offence of indecent exposure;
- (db)an offence under section 4 of the Vagrancy Act 1824(2), committed by a person by wilfully, openly, lewdly, and obscenely exposing his person with intent to insult any female;

- (dc)an offence under section 28 of the Town Police Clauses Act 1847(3), committed by a person by wilfully and indecently exposing his person;
- (fa)an offence under section 1 of the Infant Life (Preservation) Act 1929(4);
- (ga)an offence under section 1 of the Infanticide Act 1938(5);
- (gb)an offence under section 12 or 13 of the Sexual Offences Act 1956(6), other than an offence committed by a person where the other person involved in the conduct constituting the offence consented to it and was aged 16 or over;
- (gc)an offence under any other section of that Act, other than sections 18 and 32;
- (gd)an offence under section 128 of the Mental Health Act 1959(7);
- (ge)an offence under section 1 of the Indecency with Children Act 1960(8);
- (ha)an offence under section 5 of the Sexual Offences Act 1967(9);
- (ja) an offence under section 1(1) of the Genocide Act 1969(10);
- (ka)an offence under section 54 of the Criminal Law Act 1977(11);
- (na)an offence under section 1 of the Prohibition of Female Circumcision Act 1985(12);
- (nb)an offence under section 1 of the Public Order Act 1986(13);
- (oa)an offence under section 3 of the Sexual Offences (Amendment) Act 2000(14);
- (ob)an offence under section 51 of the International Criminal Court Act 2001(15);
- (oc)an offence under section 1, 2 or 3 of the Female Genital Mutilation Act 2003(16).

The list of qualifying offences is set out under **section 65A of the Police and Criminal Evidence Act 1986**.

The qualifying offences still to be added are set out in the draft Statutory Instrument: **“The Police and Criminal Evidence Act 1984 (Amendment: Qualifying Offences) Order 2013”**