National DNA Database Ethics Group

Notes of the 33rd meeting held on 18 February 2016 at

Home Office, 2, Marsham Street, Westminster, London, SW1P 2DF

1.0 Welcome and Introductions

1.1. The Chair welcomed all to the 33rd meeting of the National DNA Database Ethics Group (EG). Apologies had been received from Daniele Bryden, Christopher Harling and Adil Akram.

1.2. The Chair also welcomed Professor Cillian Ryan, Chair of the Leicestershire Police Ethics Group and Pro Vice Chancellor of De Montfort University; Andy Feist, Crime and Policing Analysis Unit, Home Office; Neil Redmond-King, Police, Science and Technology Unit, Home Office; Shazia Khan, Metropolitan Police; Gemma Gyles, Office of the Biometrics Commissioner; Kirsty Faulkner, NDNAD Delivery Unit, Home Office and June Guiness, Forensic Science Regulation Unit, Home Office.

1.3. The Chair requested that members declare any conflicts of interest with agenda items as they arise.

2.0 Note of the previous meeting and Matters Arising

2.1 The note of the previous meeting had been approved via correspondence and published on the EG website.

2.2 Matters arising were discussed:

- Action 3: Add reference to the Equalities Act regarding Gender Bias to the Y-STR proposal to demonstrate the issues have been addressed. This was being progressed by Isabel Nisbet
- Action 4: Shazia Khan to provide evaluation of the Metropolitan Police Service (MPS) Y-STR pilot when complete. The evaluation is in progress and will be provided once complete.
- Action 6: The Chair had raised the issue of the need for ethical consideration during the development of research at the previous NDNAD Strategy Broad meeting.

2.3 All the other actions were complete or were agenda items for the current meeting.

3.0 Ethical Issues Associated with Next Generation Sequencing Techniques

3.1 Members considered a paper which had been developed to provide a framework for considering the ethical issues associated with Next Generation Sequencing (NGS). The ethical issues of some of the techniques listed, such as Y-STR analysis, had already been considered by the Ethics Group (EG), and therefore the issues were more immediately apparent. The exercise was useful two-fold: firstly, to highlight the

technological developments in NGS around which the EG could draft an opinion if required as well as the areas where further discussion would be required and secondly, as a test case for mapping the ethical issues around new technologies. The ethical issues were categorised for the various new NGS technologies as follows;

- What is the potential public benefit?
- What is the potential public harm?
- What individuals or groups would be most affected?
- Threat to human rights or moral entitlements?
- Risk of error or injustice?
- Other

3.2 It was suggested that the category 'Threats to human rights/moral entitlements' should not just focus on the presumption of innocence and right to privacy but should also include public acceptance and understanding of the technology. Highly valuable technologies for combating crimes could be significantly undermined if they were introduced without proper public debate and without the proper safeguards in place. In particular, public education is essential so that the public are aware that the techniques would not result in the sequencing of their entire human genomes. Further discussion of human rights highlighted that privacy is important, but also issues of dignity, freedom and justice should not be overlooked.

3.3 Members suggested that harms to the individual should not be underestimated; being wrongly involved in the early stages of a criminal investigation could be hugely upsetting to some individuals.

3.4 The issue of public confidence was discussed in the context of whether the public would have confidence in a test if they were knowledgeable and understood about the test and this would be dependent upon levels of public trust in the organisations involved in the testing. It was suggested that commanding public confidence is linked to transparency with openness being a requirement for public confidence in technologies. In relation to transparency and public confidence, the EG's own role was highlighted including exploring these issues and demonstrating appropriate consideration and then making these open to the public. Transparency would also involve clarification that some of the by-products of the technologies are still unknown however the EG would continue to monitor these.

3.5 Consideration was given to how the framework for ethical issues with NGS could be developed further; it was agreed that confidence in the technologies was an overarching principle. Therefore, an introduction for the framework should be drafted which is accessible and comprehensive. It should also include the importance of public debate and understanding, to allow for a degree of trust, confidence and then acceptance in these new technologies, some of which may only be proposed and not yet in use. It was also thought that the title requires further consideration as the paper concerns the ethical issues of the application of the technology not the technology *per se*.

3.6 In order to disseminate the document, it would need to be sent to various stakeholders including the NDNAD Strategy Board (SB), the manufacturers of NGS

technologies, forensic science providers, social scientists and the Innovation Group and the lead for ethics within the National Police Chiefs' Council (NPCC). The process will include the Secretariat revising the document with input from the EG, distributed to stakeholders for their comments, updated and agreed by the group and published on the EG website.

Action 1: Secretariat to revise the Framework for considering the Ethical Issues with Next Generation Sequencing document including adding introductory paragraphs.

4.0 Principles of an Ethical Review

4.1 At previous meetings, the EG had considered whether it should develop a model to be used when undertaking an ethical assessment of a new study or technology. Whilst members had expressed caution about an approach which was overly rigid and prevented broad consideration of the issues, it was agreed that the Secretariat would canvas members for their views on what were the main principles and values to be taken into consideration when undertaking ethical assessments. Members' responses were provided in a paper which had been broadly categorised as follows:

- Impact on individuals: loss of rights/privacy
- Impact on groups: loss of rights/privacy
- Mitigation of harms
- Potential for errors
- Harms versus benefit justification
- Security and consent.

4.2 The EG already have a set of values and principles which were published in the annual report which would be superseded by any further principles developed. Members were invited to consider whether the group wished to develop a central list of principles and if so whether the principles could be of use to others when considering ethical issues.

4.3 Members considered current ethical thinking and noted that ethical debate in the public sphere had been focused on individual rights, liberal autonomy and the justification for interventions by the state, and in general, these have not explored solidarity and mutual obligations that developed moral thinking would assume. Therefore, a broader approach to the consideration of ethical issues was required by the EG. It was suggested that an initial consideration could be *'should our society be doing this and why?'* Then further consideration could be given to wider collective moral and legal rights that also exist at the individual level, with privacy being both a collective and individual right. Issues about proportionality and public acceptance could be considered as could the right to benefit from research which is increasingly being considered as a legal right.

4.4 The EG considered the purpose of the principles once developed, who would make use of them and the level of detail which should be included. The purpose of the principles would be likely to be two-fold. Firstly, to encourage others, including those

coming to the EG for ethical clearance on projects, to consider ethics in a structured way and to give others a degree of responsibility to consider the ethical issues of their projects; and secondly, to ensure the EG itself is considering ethical issues in a structured way. The level of detail required was considered and one view was put forward that a set of guidelines should be developed that would frame the issues. However, there was considerable support instead for a discrete number of high level principles, to include indicators as to how they may be applied, which encourage further thinking but allow for some degree of structure. They should be made open and clearly marked as guidance to enable them to function in a dynamic environment and not to constrain the thinking of the EG itself. There were concerns that anything more detailed would result in the EG spending a lot of time refining them and updating them in the future.

4.5 The draft set of principles which had been developed so far were considered by the EG and it was suggested that these were too granulated including too much specific detail. Instead the five questions used for the ethical assessments of NGS should formulate the basis of the principles, along with a couple of exemplary questions that consider the issues that might emerge and how those principles might manifest. These principles should be framed by including an introductory discussion of collective values and entitlements.

4.6 Also discussed was whether consideration of moral questions prior to any research is constraining scientific inquiry and whether initial explorations of datasets to find out what information is present and how it might be used is acceptable prior to ethical considerations. However, members held the view that Research Ethics Committees at universities and other institutions faced these dilemmas on a regular basis and exploration of datasets can be undertaken but with the necessary safeguards in place.

4.7 The use of proportionate and appropriate assurances was cautioned against as, if given sufficient consideration, it is possible to satisfy oneself that something is proportionate. Instead, the Biometrics Commissioners Office put forward the view that a Brightline Rule[1] should be adopted which is enforceable and clear and can be used to ensure consistency across the board for an application, idea or retention period.

4.8 Members had been provided with the research paper by Toom *et al* [2]in which the principles of autonomy, justice, dignity, confidentiality and solidarity were highlighted as important principles when considering forensic DNA phenotyping technologies and the EG should be cognisant of these when drafting its own principles. In

[1] A Brightline Rule is a judicial rule that helps resolve ambiguous issues by setting a basic standard that clarifies the ambiguity and establishes a simple response. The Brightline Rule exists to bring clarity to a law or regulation that could be read in two or more ways. Often a Brightline is established when the need for a simple decision outweighs the need to weigh both sides of a particular issue.

[2] Toom V, Wienroth M, M'charek A, Prainsack B, Williams R, Duster T, Heinemann T, Kruse C, Machado H, Murphy E. Approaching ethical, legal and social issues of emerging forensic DNA phenotyping (FDP) technologies comprehensively: Reply to 'Forensic DNA phenotyping: Predicting human appearance from crime scene material for investigative purposes' by Manfred Kayser. Forensic Sci Int Genet. 2016 Jan 19.

addition, democratic values were mentioned such as equality, transparency and pluralism.

4.9 In summary, the Chair outlined two extreme approaches to be avoided; the overly prescriptive approach where an individual is expected to be fully aware of all relevant provisions as opposed to arbitrary decision making by one individual. A moderate balance is required where a broad framework is adopted which stimulates thinking but does not constrain either the EG or those seeking the advice of the group. The principles would need to set the context and identify the key problems and challenges, and include discussion on public understanding, acceptance and debate along with questions of solidarity, autonomy and worked out examples.

4.10 It was agreed that as a starting point the EG would develop the Framework for Considering Ethical Issues with NGS ensuring the discussions from this item feed into that work. The overarching principles would be developed following that.

Action 2: Secretariat to ensure that discussion on the item 'Principles of an Ethical Review' feeds into the Framework for considering the Ethical Issues with Next Generation Sequencing.

5.0 Discussion with Professor Cillian Ryan, Chair of the Leicestershire Police Ethics Group

5.1 The committee heard about the Leicestershire Police Ethics Group whose members were not ethicists or philosophers but individuals with some ethical experience who represented the residents of Leicestershire. The Leicestershire Police Ethics Group had discussed in their meetings about the ethical issues of the technique of facial recognition and they had heard that the Leicestershire police collected images from CCTV and body cameras and analysed them against a database. The Leicestershire Police Ethics Group had considered whether the retention of photographic images ought to be subject to the same constraints as DNA and fingerprints or if there were inherent differences with photographs that meant the same ethical principles for their retention did not apply. The police had informed the Leicestershire Police Ethics Group that the images were not used in the courts but were used to identify suspects. Suspects could be identified in a matter of seconds and out of a total of 50 images related to serious offences 20 individuals had been identified using facial images.

5.2 The EG considered whether this analysis would disproportionately target certain groups of individuals and it was highlighted that those individuals already on the police's database of images would be disproportionately targeted which would include some individuals who had not been charged with an offence. Where human judgement was involved it was noted that it is important to recognise that some individuals are better able to distinguish between individuals in one ethnic group than in others. Members also believed that the analysis would be more effective at identifying individuals with certain facial features. Concerns were also raised about the reliability of the analysis which will depend on how the error rates are set and decisions should be made about what are acceptable error rates.

5.3 Members considered whether digitally comparing profiles raised more issues than police officers scanning CCTV images for individuals or scanning crowds for known trouble-makers. The view was put forward that the same moral principles should be applied to the retention and comparison of facial images as applies to DNA and fingerprints. A further view was that the best analogy to facial recognition was fingerprint capture which is also a quantitative assessment without a binary outcome comparable to DNA profile matching (match/no match). In the trial RMC and FJ –v- Commissioner of the Police of the Metropolis and Secretary of State for the Home Department[3] the court decided that the point at which facial images become comparable to DNA and fingerprints is when they are uploaded to a searchable database.

5.4 The group also emphasised the importance of not accepting at face value the police's perceptions of how individuals are affected by an analytical technique as the police may underestimate the effects and certain groups may be very sensitive about having their images captured, stored, and rendered digitally searchable. It was emphasised that there is an important difference between a technique being used to assist with criminal investigations and being used in the courts of law.

6.0 Project Proposal Review – Examining the role of forensics in achieving criminal justice outcomes – linking of data from the National Crime Agency (NCA) Serious Crime Analysis Section (SCAS) and NDNAD

6.1 The EG heard that this research came about as result of a review into the value of forensics in securing criminal justice outcomes. The review had identified a handful of studies but most of these were around the effectiveness of forensics in volume crime in the US. It was acknowledged that evidence of the effectiveness of forensics from a UK perspective was limited. Whilst acknowledging that this is a challenging analytical area to study the research team had suggested a piece of work to examine the role of DNA in solving and linking criminal justice outcomes for stranger sexual assaults by linking data from the NCA's serious crime analysis section and the NDNAD. The NCA's Serious Crime Analysis Section contain information of all stranger sexual assaults that have taken place since 1998 as forces have been mandated to submit this information. Linking this data to the NDNAD would give an indication of the contribution that the DNA match played in the outcome of the case. Following review by the EG, the research proposal would be reviewed by the Serious Crime Analysis Section within NCA and would be submitted to Ministers for final approval.

6.2 Members welcomed the research and reiterated that the EG had been pressing for some time, in respect of research into the effectiveness of forensics in rape cases. The EG hoped that the research would highlight the proportion of serious sexual assault cases which involve DNA evidence, whether DNA evidence is being

[3] R (on the application of) RMC and FJ –v- Commissioner of Police of the Metropolis and Secretary of State for the Home Department and Liberty and Equality and Human Rights Commission. Transcript available at https://www.judiciary.gov.uk/judgments/rmc-fj-police-commissioner-judgment-22062012/

exploited as much as is possible and hopefully define examination strategies in the future. It would be of benefit to the EG if they had greater knowledge about the effectiveness of particular types of evidence in particular cases as it would help judge the proportionality of using that evidence.

6.3 The EG expressed support to maximise the efficiency and utility of the research to inform future procedures including DNA profile retention times and detection rates. The research should not miss the opportunity to look at the relevance of any retention regimes that are in place under the Protection of Freedoms Act (2012) as proportionality is a key ethical issue in respect to retention periods for DNA profiles for various categories of crimes. It was queried whether the research would be able to identify the crimes which resulted in the offenders being on the database and how long they had been on the database, which could help inform policy choices for the retention periods for the DNA profiles in respect to those crimes.

6.4 The research proposal would be re-drafted following comments from the EG. The research would continue to focus on the outcomes and the proportion of total serious sexual assaults involving DNA evidence that resulted in convictions and the sequencing of the events. The researchers would investigate whether they can get information on the offences that led to the individuals being on the database. At a later date, the researchers might be able to further develop the project to consider linking the data to CPS case files. The EG also thought that the impact of DNA and forensic evidence in terms of jury decision making would be a valuable avenue to explore and ought to be feasible.

7 Prüm – Home Office Business and Implementation Case DNA Pilot - Experiences and Outcomes – presentation by the Metropolitan police

7.1 The Metropolitan Police provided a presentation on their pilot of Prüm and the exchange of DNA profiles with other countries (Germany, Netherlands, France and Spain) that have joined Prüm, including lessons learnt and how to move forward. The EG heard that the establishment of connections with DNA databases in other countries, to allow for the exchange of DNA, had taken significant work. However once these connections had been established, a member state was able to search another member state's databases via an automated system obtaining information about a hit on that database within 15 minutes for DNA profiles. The process would take up to 24 hours for fingerprints. When a match had been identified on a member state's database secure police-to-police communication links were used to request details from the other member state. The information was provided as intelligence only. The Met reported that their pilot had worked well and strong relationships had been developed with the countries involved in the pilot.

7.2 The Met explained that one of the reasons they had undertaken this pilot was due to the high number of foreign national offenders in London. The Met had also purchased the CODIS[4] software in preparation for the London Olympics, which was

[4] Combined DNA Index System (CODIS) is a tool developed by the FBI in the US for storing DNA profiles using the 13 core CODIS STR loci. CODIS is used in over 50 countries.

an essential requirement to participate in a Prüm pilot. A selection process was undertaken to decide which DNA profiles from the UK DNA database would be searched on the databases of other countries. High quality profiles were selected (full SGM plus profiles or better) from serious unsolved cases or linked burglaries taken from materials which were likely to hold considerable weight in court, such as stains rather than cigarettes.

7.3 Within the pilot, two types of matches were obtained. Quality 1 matches where all the alleles match exactly, and quality 4 matches where one allele's value does not match between the two specimens. A total of 118 matches were obtained during the pilot from both individuals and from crime stains. Matches were obtained from all 4 countries involved in the pilot with the most matches coming from France and Germany. Once a match was obtained, an electropherogram[5] of the results was requested to check that it was a true match. The Prüm pilot had led to a number of leads for serious cases including the identifications of an offender in a stranger rape case and the assailant in a GBH case.

7.4 Due to a variety in the type of kits used by the different countries a number of matches were obtained where 8 full loci matched (with no mismatches) however the study group were not allowed to follow up these matches. Concerns were raised that when Prüm is fully implemented, restricting the comparisons to profiles that have 10 or more full loci matches, would be negligent. The Met suggested that a match probability of 1 in a billion should be adopted as a criterion for using Prüm instead of using a rule of 10 full loci.

7.5 The timeline of the Prüm pilot was affected by a number of challenges including navigating numerous firewalls in other countries in order to establish the connections and some countries had bespoke systems in place for which workarounds had to be implemented. A key message was not to underestimate the time required to set up the IT process for Prüm.

7.6 To summarise, Prüm would provide very quick automated search of databases in other countries which would make it an excellent tool in solving crimes. However, establishing a connection with other databases could be resource intensive and there is a need for safeguards including the technical verification of profiles. It was noted that Prüm was not the solution to all international DNA exchange and that the Met were working with the Home Office (HO) to make Interpol more streamlined.

7.7 Discussions were held on when Prüm would be fully implemented and whilst it would be possible to reconnect immediately to databases in other countries through the Met's pilot connections, it would take two years before Prüm is fully operational.

8.0 Custody Images Review

8.1 Members of the EG were provided with an update of the HO review of Custody Images which was aimed at agreeing what the HO policies were in relation to the

[5] Electropherogram is the plot of a result from an analysis done by electrophoresis using an automated DNA sequencer.

retention of custody images taken under PACE (as distinct from those taken under any other power such as Counter Terrorism Powers). Authorised Professional Practice (APP) guidance which covers this area and the code of practice that the guidance is issued under are no longer owned by the HO but by the College of Policing. Therefore, the output of the review would be for the HO to make policy recommendations to the College of Policing who would then need to decide the right approach in consultation with others. The College of Policing may accept the recommendations from the HO in their totality or they may wish to test some of the evidence further. The College of Policing are obliged to conduct a consultation, including the public as well as police officers and regulators, on any changes to the guidance. The College of Policing will then either need to make changes to the existing APP guidelines, or change the code of practice or issue a new code. The HO Custody Images review would be published alongside the biometric strategy in the next few months as these are related issues.

8.2 The EG heard that a more comprehensive review of the management of police information is planned with a new APP being developed across the board. Whilst, this will take some time it is necessary due to legal risks that have emerged.

8.3 The EG expressed their views that there should be a clear statutory regime for the retention and use of custody images which is similar to that which is in place for the retention of DNA and fingerprints as provided for under the Protection of Freedoms Act (PoFA) 2012. A number of key differences between the retention of DNA and fingerprints compared with the retention of images were highlighted including that the utility of a photo diminishes with age, which is not applicable for DNA or fingerprints. A further difference is that the PoFA focuses on the individual whilst the focus for operational images will be on the instances that the photos were taken and how they are used.

8.4 The EG queried whether alterations to the APP guidance would have the force of statute. Members were informed that any new guidance issued by the College of Policing will be under the code of practice which in turn comes under the Police Act that has the force of statue behind it. The process of updating the APP guidance would be implemented faster than a full statutory regime can be implemented. This is important if procedures are to be quickly aligned across police forces and for behaviours to be changed to prevent risks to individuals' privacy and risks to policing and the HO.

8.5 Clarification was sought on the consultation processes and whether the HO had undertaken any consultations prior to formulating their policy advice. It was clarified that whilst the HO undertook opinion gathering prior to developing its policy it would not be consulting on its policy views as the purpose of these is to provide Ministers with advice on legal and operational risks. The consultation process would be undertaken in whole by the College of Policing. The EG expressed concern as to whether the College of Policing consultation would have the scope of choice within it and the extent to which it would elicit a response from the public in the way that a HO consultation might. It was noted that the HO would assist with public recognition and awareness for the consultation.

8.6 The HO agreed to attend the next EG meeting in June when the conclusions from the Custody Image Review had been published.

Action 3: Secretariat to invite the policy leads from the Custody Image Review team to the June EG meeting to provide an update on the conclusions from the review.

9.0 Glossary of terms for the Ethics Group minutes

9.1 The Chair requested that members submitted any comments on the Glossary of terms for the Ethics Group minutes to the Secretariat.

Action 4: Members to submit any comments on the Glossary of terms for the Ethics Group minutes to the Secretariat.

10.0 Chair's update

10.1 The Chair reported that he had met with Alex Marshall, the head of the College of Policing. Whilst the College indicated they had an interest in research and promoting research it is clear that they do not see research around the National DNA database to be their responsibility and that they see it as the responsibility of the Strategy Board and the Ethics Group. The EG and Strategy Board should work to ensure that the lapses which occurred in relation to Rapid DNA should be avoided in future. It was suggested that the EG could reflect on the lessons learnt from the Rapid DNA work from an ethical point of view and it was agreed that this could be investigated as a piece of work for next meeting.

Action 5: Secretariat to investigate whether the EG could reflect on the lessons learnt from the Rapid DNA work from an ethical point of view at the next meeting.

10.2 The Chair updated that the Chief Scientist's Annual Report 'Forensic Science and Beyond: Authenticity, Provenance and Assurance' had been published and a working group had been established on implementation. The EG heard that the report contained a number of questions for policy makers with respect to dilemmas posed by novel techniques. These included:

- How can we best support the effective use of emerging forensic techniques and ensure the public remains confident in them?
- What is the reliability of our measurement techniques, both the detection of false positive and false negative results and how the reliability can be increased?
- Considering specific technologies for specific purposes: what are the acceptable boundaries for the use and interpretation of forensic evidence?
- Where might it be acceptable to use DNA to provide phenotypic and physical characteristics of an individual?

- Where DNA technology is being used, what are the necessary standards and accreditation mechanisms for analysis and interpretation?
- Do we need a new forum to debate and deliberate on the scientific and ethical issues relating to forensic techniques and perhaps to oversee and regulate their application?

10.3 It was predicted that some of these recommendations would be filtered into the HO biometrics strategy. The Secretariat agreed to circulate to members a link to the online report.

Action 6: Secretariat to circulate to members a link to the online Chief Scientist's Annual Report 'Forensic Science and Beyond: Authenticity, Provenance and Assurance'

10.4 Finally, the chair noted that the National Police Chiefs' Council's lead for Ethics is developing a national structure for ethics covering policing and police forces. The EG hope to meet with him sometime this year and the Secretariat will pursue this.

Action 7: Secretariat to arrange a meeting with the National Police Chiefs' Council's lead for Ethics.

11.0 Rapid DNA Project Board update

11.1 A meeting of the Rapid DNA Project Board had taken place on 14 January 2016 and Alan Clamp had attended as a representative of the Ethics Group. A key item of interest at that meeting had been the Rapid Assurance Guidance Document that outlines the guidance around which Rapid DNA should take place. The EG had commented on this guidance and the feedback had been submitted to the project board. The main issues had been that the guidance does not completely reflect the validation requirements set out in the code, which leads to issues of quality control and accountability. A further version of the guidance would be issued. West Yorkshire police had been invited to attend the project board as they were starting to pilot the technology.

12.0 Forensic Science Regulator's update

12.1 Members had been provided with briefing notes from two workshops held by the Forensic Science Regulator: Y-STRs and mRNA. The outputs from these workshops were that mRNA is still an emerging technology and there is currently no clear identification of user requirements. Y-STR profiling technologies were more advanced however there were still a number of gaps and it had been agreed that the regulator would develop a set of standards for Y-STRs, in particular to cover the interpretation and reporting of these systems and to address issues of relevant populations used for reporting. A further meeting would be convened to progress this work.

12.2 Further progress updates provided from the FSR included that the annual report had been published which included high risk areas such as anti-contamination and the Central Elimination Database. The anti-contamination guidance had been published in December 2015 and following this the ISO 18385 consumable standard was published in February 2016. This standard covers the manufacture of consumables to be used for the purpose of collecting and transporting DNA material. There were plans to launch the Scene of Crime anti-contamination guidance at an event on 19 May 2016 and the EG would be invited.

12.3 Other priorities included developing a standard for use in the Sexual Assault Referral Centres (SARCs). The standard would be consulted on over the summer and be finalised next year. The EG heard that SARCs were moving to be under the responsibility of the Department of Health and would be required to register with the Care Quality Commission (CQC). The CQC would have responsibility for inspecting SARCs. The standard being developed by the FSR would sit alongside medical standards. The FSR had also recently put tenders out for the development of a mixtures interpretation guidance and a standard for mixtures interpretation software.

13.0 DNA Database Delivery Unit update

13.1 A full report would be provided at the next meeting on the establishment of a Central Elimination Database. An overview was provided that to date 25,000 profiles of police officers had been compared with crime scene stains on the database and a total of 484 initial matches had been identified. So far, 46 of these had been confirmed as contamination.

13.2 The next Strategy Board meeting would be held on 23 March 2016 and would cover both DNA and fingerprints. The Forensic Strategy had been signed off by the Home Secretary and was in the process of being published. The Biometrics Strategy had been reviewed but needed redrafting and would be published in the Spring. The EG were also informed of a business case examining the different options of what a joint biometrics and forensics service would look like and how a national approach for forensic science and biometrics services could be formed.

14.0 Biometrics Commissioner's update

14.1 The current Biometrics Commissioner's tenure had been extended by up to three months until the end of May 2016 to ensure there could be a handover process with the incoming Biometrics Commissioner. The Biometrics Commissioner's 2015 Annual Report was submitted to the Home Secretary in December 2015 and it should be published shortly. Gemma Gyles outlined some of the issues that are dealt with in the report[6].

[6] The full report can be read here: https://www.gov.uk/government/organisations/biometrics-commissioner

15.0 AOB

15.1 Members were invited to review the EG 2015 annual report at an early stage. The report would be submitted to the committee at the June 2016 meeting prior to being published.

15.2 No AOB items were raised. The EG would meet again on 7 June 2016, 13 September and 6 December.

Annex A

Attendees

Chris Hughes	Chair
Alan Clamp	Member
Nina Hallowell	Member
David Latchman	Member
Carole Moore	Member
Isabel Nisbet	Member
Barbara Prainsack	Member
Jennifer Temkin	Member

Apologies

Adil Akram	Member
Daniele Bryden	Member
Kit Harling	Member

In attendance

Emma Burton-Graham	NDNAD EG Secretary
Kirsty Faulkner	NDNAD Unit, Home Office
Andy Feist	Crime and Policing Analysis Unit, Home Office
June Guiness	Forensic Science Regulation Unit, Home Office
Gemma Gyles	Biometrics Commissioner's Office
Shazia Khan	Metropolitan Police
Neil Redmond-King	Police, Science and Technology Unit, Home Office
Cillian Ryan	Chair of Leicestershire Police Ethics Committee
Mike Taylor	NDNAD EG Secretariat
Jo Wallace	Science Secretariats, Home Office

Annex B

Glossary

Biometric Information	Information about an individual's physical characteristics such as fingerprints or eye colour, which are distinctive and measureable.
Biometrics Commissioner	Independently appointed post to provide oversight of the regime established by the Protection of Freedoms Act to govern the retention and use by the police in England and Wales of DNA samples, DNA profiles and fingerprints. The post has a UK-wide oversight function as regards their retention and use by the police on national security grounds.
Central Elimination DNA Database (CED)	A centrally held database of DNA profiles taken from individuals who are involved in a role where there is a increased risk that they may inadvertently contaminate a sample taken from a crime scene with their own DNA, such as manufacturing or laboratory staff, crime scene officers and police personnel.
College of Policing	The professional body for policing which operates in the public interest to find the best ways to deliver policing and support for the police service.
Counter Terrorism (CT) DNA Database	A DNA database operated by the Metropolitan Police Service which contains the DNA profiles obtained through searches, crime scenes and arrests in relation to counter terrorism.
Crime Scene Stain	Biological material recovered from the scene of a crime from which DNA may be able to be extracted.
Criminal Justice Sample	A sample of DNA obtained compulsorily from people arrested by the police for a recordable offence under the provisions of the Police and Criminal Evidence Act 1984.
Crown Prosecution Service (CPS)	Established in 1986, it prosecutes criminal cases investigated by the police in England and Wales. It advises police, reviews cases submitted by the police and prepares and presents papers for cases in court.
Custody Images Review (CIR)	Review by the Home Office to consider proportionality of the use and retention of images on a national database.
Dactyloscopy	The method of ridge analysis in human skin (typically fingers and palms) *[See also Fingerprints]*
Data Linkage	A process which brings together two or more sets of data from different databases, organisations or countries to enhance the information that can be obtained from the data (e.g. by combining different datasets, new patterns may become apparent)
Deoxyribonucleic Acid (DNA)	The chemical in the cells of an organism that carries that organism's heritable material used in the development, functioning and reproduction of all known living

	organisms. DNA is a nucleic acid and consists of two strands coiled around each other to form a DNA double helix. Each DNA strand is composed of smaller units called nucleotides and the sequence of these nucleotides encodes biological information.
DNA Profile	A numerical representation of the characteristics of certain sections of (typically non-coding) DNA obtained following the analysis of a DNA sample which can be uploaded to a database and compared with other DNA profiles.
DNA 17 Profile	A profile produced using the latest system of DNA profiling technology which examines 16 sections of DNA, plus a gender marker to produce a numerical DNA profile that can be loaded onto the National DNA Database. The methodology used creates greater discrimination between profiles than the previous SGM + methodology and reduces the probability of chance matches between individuals.
Elimination DNA sample	A DNA sample taken from an individual and used to create a DNA profile in order for that individual to be eliminated as the source of a sample found at a crime scene *[see also Central Elimination DNA Database]*
Epigenetics	This is the study of (partly heritable) changes in gene expression due to external or environmental factors that affect how genes are read, rather than changes in the underlying DNA sequence.
Facial Recognition System	A computer application capable of identifying or verifying a person from a digital image or a video source by comparing selected facial features from the image with those on a facial database.
Familial Searching	Involves searching the database for DNA profiles that do not match fully to a comparison profile, but where an unusually high number of loci match. This could indicate a biological relationship such as parent, child, sibling, cousin, uncle etc.
Fingerprints	The impression left by the epidermal ridges in a human finger. The print consists of a mixture of sweat and skin cells. *[See also Dactyloscopy]*
Forensic Science Regulator (FSR)	Ensures that the provision of forensic services across the criminal justice system is subject to an appropriate regime of scientific quality standards. The FSR works with the Home Office.
International Standards Organisation (ISO)	Is an independent, non-governmental international organisation. It brings together experts to share knowledge and develop international standards that are voluntary, consensus-based and market relevant.

Low copy number (LCN)	A modified version of DNA profiling that is performed when the amount of DNA recovered from a biological sample is very limited. The number of PCR cycles is increased compared to standard SGM plus, which enhances the sensitivity of the technique and improves the likelihood of detecting DNA.
Random Match Probability	The probability that a DNA profile matches a randomly drawn person from the general population. If the random match probability is high, then any suspected link between the DNA and a person needs to be treated with caution.
Metagenomics	Is the study of the diversity of species in a microbial sample which has been recovered from the environment. It allows the study of all genes in all organisms which are present in a given complex sample.
Mixed DNA Profile	A profile where DNA from more than one individual is present. A mixed DNA profile is evident when more than two copies of DNA are observed at a region. *[See also DNA profile]*
National Crime Agency	Leads the UK law enforcement's fight to cut serious and organised crime. It has national and international reach and the mandate to work in partnership with other law enforcement organisations to tackle serious and organised criminals.
National DNA Database (NDNAD)	Established in 1995, it is an electronic, centralised database holding the DNA profiles taken from both individuals and crime scenes. The database can be searched to provide police with a match linking an individual to a crime scene and *vice versa*.
National DNA Database Delivery Unit (NDU)	A department within the Home Office responsible for overseeing the running of the National DNA Database.
National DNA Database Strategy Board (NDNAD SB)	A board comprising representatives from ACPO, the Home Office, the DNA Ethics Group and the Forensic Science Regulator as well as representatives from other bodies that provides governance and oversight for the operation of the NDNAD.
National Police Chiefs Council (NPCC)	The NPCC bring together the 43 operationally independent and locally accountable chief constables and their chief officer teams to coordinate national operational policing. They work closely with the College of Policing.
Next Generation Sequencing (NGS) or Massive Parallel Sequencing (MPS)	This is the terms used to describe a number of high throughput approaches to DNA sequencing that allow the sequencing of DNA much more rapidly and cheaper than previously.

ParaDNA® Instrument	An instrument that can be used at a crime scene and is able to produce a DNA profile from a sample within 75 minutes. ParaDNA® profiles include 5 STRs and a gender test and therefore the discrimination power provided from these profiles are much less than obtained from full SGM+ and DNA17 profiles. *[See also Rapid DNA Technology]*
Partial DNA Profile	This is the term used to describe a profile when results have been obtained at some but not all of the sections of DNA which were analysed. Partial profiles are often obtained from samples recovered from crime scenes as the DNA may have been subject to conditions which have degraded it, which means that not all regions of DNA of interest are intact.
Phenotype	The physical manifestation of an individual's genotype combined with the effects of exposure to environmental factors (e.g. the hair colour, facial features, or personality traits of a person)
Phenotypic profiling	The use of DNA analysis in order to obtain information about externally visible traits, and/or the likely ethnic background, of a person. The information cannot be obtained from traditional STR profiles but requires a special type of analysis.
Protection of Freedoms Act (PoFA)	An Act of Parliament of the UK which was introduced by the Home Secretary in 2011 and sponsored by the Home Office. In May 2012 the Bill completed its passage through Parliament and received Royal Assent.
Prum Agreement/ Convention	A convention sign in May 2005 by Austria, Belgium, France, Germany, Luxemburg, the Netherlands and Spain and is open to all members of Europe and enables the signatories to be able to exchange data regarding DNA, fingerprints and vehicle registrations of persons suspected to be co-operating in terrorism, cross-border crime and illegal migration.
Rapid DNA Technology	Technology which has the ability to produce a DNA profile much faster than can be done using conventional technology and is also portable.
S and Marper	This refers to a case where S joined with Marper to bring a case to the European Court of Human Rights after their applications to the English courts had failed. They objected to the retention by the police of their DNA samples, profiles and fingerprints as they had not been convicted of any offence. The police were entitled to retain them under the law then in force. S and Marper relied principally on Section 8 of the European Convention of Human Rights which protects the right to privacy. The Court found in their favour. It held that the margin of appreciation had been exceeded and their right to privacy had been infringed. This decision led eventually to the passing of the Protection of Freedoms

	Act 2012 which changed the law on the retention of samples, profiles and fingerprints. This in turn led to the removal of millions of profiles from the National DNA Database.
Second generation multiplex (SGM, SGM+)	A system of DNA profiling which was used in the UK until July 2014 which examines 10 sections of DNA plus a gender marker to produce a numerical DNA profile that can be loaded onto the National DNA Database. At each of the 10 areas an individual has two copies of DNA, one inherited from each of their parents.
Short Tandem Repeat (STR)	Sections of DNA dispersed within coding and non-coding regions of the human genome that contain hundreds of repeats of a short sequence of DNA (2-6 nucleotides). Different people have different numbers of repeats and when a number of regions are analysed, the chance of two people having the same number of repeats at all loci is small. This is the underlying principle of DNA profiling.
Single Nucleotide Polymorphism (also referred to as SNPs – pronounced “snips”	This is a variation at the level of single nucleotide bases that occurs at a specific position in a sequence of DNA.
United Kingdom Accreditation Service (UKAS)	Is the national accreditation body for the UK and is recognised by government to assess against internationally agreed standards, organisations that provide certification, testing, inspection and calibration services.
Y-STR profile	*See STR profile* but restricted to regions found only on the Y-chromosome (which is only present in males).