

Biometrics and Forensics Ethics Group

Notes of the 11th meeting held on 4 March 2020, at the Home Office, 2 Marsham Street, Westminster.

1 Welcome and introductions

- 1.1 Mark Watson-Gandy, Chair, welcomed all to the 11th meeting of the Biometrics and Forensics Ethics Group (BFEG) – see annex A for attendees and apologies.

2 Massively Parallel Sequencing

- 2.1 Cellmark Forensic Services provided a presentation on the implementation of Massively Parallel Sequencing (MPS) using Verogen's Forensic Genomics System which they have been validating for evidential and intelligence purposes. Cellmark has applied to UKAS to seek ISO17025 accreditation for the service. Key points included:
- Cellmark's MPS application would look at: sequencing of short tandem repeat (STR) alleles, both autosomal and X- and Y-chromosomes; and Single Nucleotide Polymorphisms (SNPs), for identity, phenotype (hair and eye colour) and biogeographical ancestry markers.
 - The benefits of MPS were; that multiple analyses could be carried out in a single reaction, potentially leaving more for future testing; and that sequencing of STR results provided more information and greater discrimination for mixed or degraded samples, as well as additional information to assist in the resolution of complex relationship cases.
 - Phenotypic and ancestral information would be provided for intelligence only, to assist in cases with an unknown suspect or unidentified body. Ancestral information may be useful to police to prioritise lines of enquiry or target searches of other countries DNA databases.
 - The MPS phenotype analysis uses 24 SNPs to estimate eye and hair colour. All 24 markers are required by the software to give an estimate. These markers are good at predicting black and red hair colour and predicting blue or brown eye colour, and less good at predicting brown and blonde hair and green eye colour as these are more of a continuum. It was noted that hair and eye colour could be changed, and hair colour changed with age. Estimates are presented as percentages to show most likely hair colour and eye colour.
 - The system uses 56 biogeographic SNPs to estimate biogeographical ancestry, the software can make an estimate without results from all the SNPs but, if reported, the results would be caveated based on the number of SNPs used. Outcomes from this analysis would depend on the population sets used, the Verogen MPS set covers 14 different ethnic groups and estimates of ancestry are presented overlaid on a cluster graph of population data. It would also be possible to search MPS data against population datasets produced by research groups worldwide and held on open-access databases.

- MPS was not expected to replace current STR analysis for all cases as STR analysis cost police forces around £20/sample for a reference buccal sample while MPS was estimated to cost several hundred pounds per sample. However, MPS would be beneficial in cases with low level or degraded DNA, and mixed DNA samples.

2.2 The members identified issues with the population data used to generate the phenotypic and ancestral estimates. Issues raised included:

- No South Asian population set for ancestral origin; missing out a large population group.
- Ethical issues from placing people into geographical groups that may not represent their origin, for example individuals classified as Chinese origin who had lived in Europe for many generations, or mixed origin individuals.
- The reliability of the phenotypic and ancestral markers.
- The limited amount of information generated from some phenotypic and ancestral markers used and the association with some traits, such as Asian ancestry and dark hair.
- Estimation of ancestry from values at the edges of population clusters would be less certain and would vary depending on the data used to train the algorithm.
- A risk of excessive data collection.
- The risk that incorrect judgements were made by police from the intelligence information provided by phenotypic and ancestral estimates.

2.3 The representatives from Cellmark agreed that communication of phenotype and ancestry intelligence information to police forces was key however, police officers were already making decisions on suspect's appearance based on witness statement information. Intelligence information on phenotype and ancestry would be disclosable to the defence however, at this stage STR analysis for evidential comparison of suspect's DNA would have been carried out and reported.

2.4 The Verogen MPS analysis can be either the identity markers only (STRs and identity SNPs) or the identity marker and the phenotypic and biogeographic ancestry markers. The presenters stated that there did not appear to be any benefit in collecting phenotypic and ancestral data from a reference sample taken from an arrested person. For casework samples, a clear decision would be needed to perform the analysis of the phenotypic and biogeographic ancestry markers.

2.5 The BFEG did not raise any concerns regarding the use of the MPS identity markers, however some considerations were advised for the use of the MPS phenotypic and ancestral markers:

- It should be explained how data from phenotypic and ancestry markers are used to give predictions on phenotype and biogeographical origin.
- Ancestral and phenotypic data should be presented as probabilities to allow uncertainty to be evaluated.

- An onus should be placed on the manufacturers of the phenotypic and ancestral DNA marker products to continually improve the range of markers used.
- There should be clarity on how judgements would be made about when to use MPS and who would make this decision.

2.6 The presenters were also asked if there had been an audit of the data used to calculate predictions of phenotypic features and ancestry. The data was published and Cellmark had carried out some validation work. It was noted that there would be differences between the data set used for MPS and a UK population data set. A suggestion was made that the MPS output could be refined to reflect the UK population. The terms used to describe the population groups should also be considered to reflect the UK population.

2.7 Members provided views on implementation of MPS and whether the technique should be used routinely:

- It was noted that while some jurisdictions in France were routinely using MPS the current UK STR system was powerful and MPS was very expensive and results would take longer.
- It was noted that cost should not be considered as a factor in ruling out routine use. Increased scale of analysis and lower price consumables and equipment could reduce costs over time.

3 Notes of the last meeting & matters arising

3.1 Subject to minor amendments the minutes of the previous meeting, held on the 16th of December 2019 were agreed and would be published on the BFEG website. An update on previous actions can be found in annex B.

4 Chair's update

4.1 Professor Dame Sue Black had resigned from the BFEG since the last meeting as a result of work commitments. The Chair and the members expressed sadness at her resignation and wished her every success in her work.

4.2 The group were informed that the second annual report from the BFEG, covering 2018/19, was ready for publication and submitted to ministers in the coming weeks.

4.3 An update on the Forensic Information Database Service Strategy Board (FIND SB) workshop held in January was provided by the Vice-Chair

4.4 The Chair had recently attended the All-Party Parliamentary Group on Entrepreneurship and highlighted a presentation from Thales on a new biometric product for identification and age verification using finger vein patterns.

5 Forensic Capability Network (FCN) and research ethics

- 5.1 Members heard from the National Police Chief's Council (NPCC) Forensic Capability Network (FCN), which would provide services for the 43 police forces. The FCN was in the early stages of determining the research landscape across both traditional and digital forensics. Key points included:
- The science pillar, one of four of the FCN, was currently reviewing the national forensic research and development landscape, to identify current provision and engage with the police and the commercial sector to identify their needs, wants and challenges, as well as engaging with the forensic practitioners in resolving some of their issues.
 - The aim was to produce a research framework for traditional and digital forensics for the present and the future, and to ensure this was available in one location where the practitioners and users of the service could easily access this information.
- 5.2 Suggestions from members on developing this framework included:
- That Research Councils, the Centre for Data Ethics and Innovation (CDEI) and the Alan Turing Institute could assist with the ethics framework.
 - University research programmes could also be useful.
- 5.3 FCN would welcome comments from the BFEG on the draft FCN Ethics Framework, once available.

6 Home Office Biometrics Ethics (HOB E) Working Group Update

- 6.1 Members heard an update from the HOB E Working Group. The future direction of Working Group within the HO Biometrics Programme had been clarified (action 7 from December 2019 meeting):
- The working group would be providing input at an earlier stage in a project (rather than after a DPIA was complete).
 - The 2020/21 workplan for the group included five ongoing projects for review of Data Privacy Impact Assessments (DPIA) and seven projects in development. Future work may also come from outside of the HOB programme.
 - The work of the group may crossover with the work for the Complex Datasets Working Group. A member of Complex Datasets Working Group offered to join the HOB E group, to support this.

Action 1: Secretariat to invite additional member to join the HOB E WG

7 Facial Recognition Working Group Update

- 7.1 An update was provided by the Chair of the Facial Recognition Working Group (FRWG). The group were tasked with producing a report on the collaborative use of

Live Facial Recognition Technology (LFR) between public and private sector users. The Chair noted that the group had found it difficult to identify specific use cases and some collaborations identified had been small. As a result, the group were concerned that had insufficient information to produce a report. The BFEG policy sponsor suggested the group consider the use of LFR within the private sector, such as shopping centres, and the impact this could have on policing in the future.

- 7.2 The preparation of a briefing note was agreed based on the information received so far in relation to the public and private partnerships use of LFR and the ethical issues that should be considered. The note could also include appropriate rules that should be followed when entering into an LFR public/private collaboration.

Action 2: FR WG to draft a briefing note on collaborative use of LFR for discussion at the next BFEG meeting.

- 7.3 The group had recently put out a call for evidence on facial recognition technology, inviting manufactures of LFR technology and private and public users of the technology, and including private providers, to submit evidence. So far, the group had met with Amazon Web Services and Anyvision.

8 WG-3 Large and complex datasets group update

- 8.1 Members heard an update from the large and complex datasets group:
- The group had received presentations from Home Office data scientists from the Data Analytics Competency Centre (DACC) on two use cases.
 - Data Protection Impact Assessments (DPIA) had not been conducted for the two use cases. The processes had been in operation prior to implementation of GDPR, however, based on the groups' recommendation, DPIAs would now be produced for the two use cases and shared with the group.
 - The group would be producing:
 - an internal report on the two cases after review of the DPIAs.
 - a public report providing guidance on ethical considerations and recommendations in automated classification systems.

Action 3: Complex Dataset Working Group to produce general guidance on ethical issues in automated classification systems and share with the BFEG, for comments.

Action 4: Complex Dataset Working Group to complete and share their internal report on the two Data Analytics Competency Centre cases with the BFEG, for comments.

9 WG-4 Data Ethics framework update

- 9.1 Members heard an update from the Data Ethics framework group, which was reviewing published data ethics frameworks and considering what elements could be used in a Home Office data ethics framework.
- 9.2 There were currently between 80 or 90 ethic frameworks available, and the majority contained high level principles, which would be challenging to transfer into useful guidance for use by all practitioners, e.g. in policing or in Artificial Intelligence (AI).
- 9.3 Members heard the following suggestions:
- Developing a specific set of principles, based on Home Office priorities rather than a general set of high-level principles. The Data Ethics framework from the Department for Media Culture and Sport (DCMS) was being updated and may provide the framework for the Home Office. The Data Analytics Competency Centre (DACC) were developing specific guidance for data scientists and this would include the ethical considerations and recommendations received from the Complex Datasets Working Group.
 - Using the ethical considerations and recommendations from other working groups and developing a data ethics framework using these examples.

10 Home Office Policy Update

- 10.1 As a result of the Gaughran case at the European Court of Human Rights the custody image review II was paused. This review would be broadened to be an over-arching biometrics data access and retention review.
- The BFEG would be involved in providing feedback throughout the initial scoping stage of the review. The review would include collection, access, and retention, of other data that would eventually be used in a forensic context.
- 10.2 The need to comply with data protection legislation and issues with legacy IT systems were highlighted as challenges. A balanced and consistent approach across all the biometrics would be needed, reflecting the needs of each biometric.
- 10.3 Members agreed that the production of the planning leaflet on retention of custody images for arrestees should not be delayed by the review; a draft of the leaflet would be provided by policy to BFEG for comment.

Action 5: Policy to share draft custody images leaflet with BFEG representative.

- 10.4 The use of LFR was noted as an ongoing issue in parliamentary questions received by the Home Office.
- 10.5 There was a £28 million investment in planned over the next year to put the Forensic Capability Network on a secure financial footing, including investments in:
- digitising forensics (over £20 million) particularly fingerprint analysis.
 - digital forensic analysis of devices and
 - reducing backlogs and improving infrastructure and policy structure.

10.6 The group were informed that Kit Malthouse, Minister of State for Crime and Policing, now held a shared portfolio with the Ministry of Justice.

11 Biometric Commissioner's update

11.1 In the next few weeks, the Biometric Commissioner's Annual Report would be submitted to the Home Office, who would then decide when to lay it before parliament.

11.2 The Commissioner had recently given a lecture at Leeds University which covered many of the issues discussed in the annual report. The text of this lecture could be found on the Commissioner's website.

11.3 The group were informed that the current Commissioner's term would end in June and it was not expected that he would stay on in the role.

12 FIND SB update

12.1 An update was given for the position on Ministry of Defence access to policing (fingerprints) data, with a focus on practical and policy approaches that can be implemented to manage this position.

12.2 The UK was now connected to Romania and Poland in preparation for Prüm DNA data exchange. In April the UK was expecting notification from the EU parliament and approval from ministers for fingerprint searches. Fingerprint searches between the UK and Germany were planned to begin in May 2020.

12.3 The date for delivery of the new NDNAD2 platform for the National DNA Database remained the 6th April 2020.

12.4 The FINDS team were required to relocate offices during May 2020 and would keep customers and stakeholders informed where this may impact on services.

12.5 The proposal to increase the number of DNA markers retained on the NDNAD would be considered at the FIND SB at the end of March 2020 and, pending approval, this work package would be added to stage three of the Home Office Biometrics Programme (HOB) work plan.

12.6 An Expert Network had been set up by FINDS to investigate establishment of a Y-STR database. The network was addressing how a reference data set could be obtained. Once the requirements were in place for a Y-STR intelligence database, this would be added to stage three of the HOB DNA work plan.

13 Genetic Genealogy

13.1 Members agreed that the list of targeted recommendations should be removed.

13.2 It was agreed that the ethical issues had been addressed.

13.3 The two main authors of the report agreed to amend the presentation of the recommendations and create a final draft.

Action 6: Authors of the Genetic Genealogy report to review the recommendations and a final draft to be circulate to the BFEG for comment.

13.4 Members agreed that the report should name the main authors and include a list of all BFEG members.

14 Recommendations for 2019/20 Annual Report

14.1 Members discussed recommendations from BFEG meetings and commissioned work for inclusion in the 2019/2020 annual report (between March 2019 and March 2020). Amendments agreed included:

- recommendation 2.5 (specific guidance for a research pilot) to be amended to a general comment on pilot design and could sit in the main body of the report rather than the final list of recommendations.
- recommendation 2.10 (Biometrics programme DPIA template) to be broadened to recommended improvements to the Home Office DPIA template.
- to highlight that the HOB Ethics group were often commenting on the fact that ethical considerations go beyond privacy issues.
- to include any specific details of the recommendations in an appendix.

Action 7: Secretariat to make amendments to recommendations for 2019/20 annual report and share this with the BFEG for comment.

14.2 The secretariat also requested that members provide update biographies for the 2019/20 Annual Report if required.

Action 8: Members to provide any updates to biographies for the 2019/20 Annual Report.

15 Any Other Business

15.1 The Secretariat will shortly be updating members' register of interests on the BFEG website. Members were asked to send any updates to their register of interests to the secretariat.

Action 9: Secretariat to share the members' register of interests; members to provide updates if necessary.

15.2 The BFEG had been approached by the Office of Communications Data Authorisations (OCDA) to carry out an independent review the application of ethical standards to the work processes of the OCDA. A sub group was formed to establish

the scope of the review. The secretariat would arrange a meeting between the sub group and the OCDA.

Action 10: Secretariat to arrange a meeting between the BFEG sub group and the CEO of the OCDA.

15.3 Members highlighted that the Home Office document sharing platform for working collaboratively on document was not fit for purpose. Depending on the outcome of the Home Office Science spending review purchase of a better document collaboration platform may be possible.

15.4 The date of the next meeting would be 10 June 2020.

Annex A – List of attendees and apologies

Present

- Mark Watson-Gandy - Chair
- Louise Amoore - BFEG Member
- Simon Caney - BFEG Member
- Nina Hallowell - BFEG Member
- Mark Jobling - BFEG Member
- Isabel Nisbet - BFEG Member
- Thomas Sorell - BFEG Member
- Denise Syndercombe-Court - BFEG Member
- Richard Guest – BFEG Member
- Charles Raab – BFEG Member
- Peter Waggett (teleconference) - BFEG Member
- Gill Tully – Forensic Science Regulator
- Andrew Thomson (teleconference) – FINDS Unit, HO
- Lucy Bradshaw-Murrow – Biometrics Commissioner’s Office
- Alex MacDonald - Identity Unit, HO
- Carl Jennings - Identity Unit HO
- Cheryl Sinclair - Identity Unit HO
- Sanaya Thethy - Identity Unit HO
- Joanne Wallace – Head of Science Secretariat, HO
- Nadine Roache BFEG Secretariat, HO
- Jennifer Guest - BFEG Secretary, HO

Apologies

- Liz Campbell - BFEG Member
- Jennifer Temkin - BFEG Member

Annex B – review of open actions from previous meetings

September 2019

- **Action 3** (Custody Images leaflet) – See section 10.3
- **Action 4** (Forensic Science Research Agenda) – An interim body was seeking views from major stakeholders for current, near future, and long-term research needs. The views of the BFEG may be sought at the public call stage.
- **Action 8** (Identification of Live Facial Recognition collaborative use cases) - This action was closed as the Law Enforcement Facial Images and New Biometrics Advisory Board (FACE board) no longer sits. Police use of automated facial recognition would be discussed by the Facial Recognition sub group of the NPCC biometrics portfolio. The Home Office was represented at this group.

December 2019

- **Action 1** (Information on online passport application algorithm) – Ongoing. The algorithm used to confirm identity when submitting a passport application online is planned for consideration in the Home Office Biometrics (HOB) programme bias review. Awaiting further information from Passport Office.
- **Action 2** (Establishment of a National Crime Laboratory) – action closed. Proposal was at an early stage and there was no update currently.
- **Action 4** (Guide to DNA profiling for BFEG members) – this action was on hold pending completion of other work.
- **Action 5** (Genetic Genealogy Report) – see section 13
- **Action 7** (HOB E WG meeting) – see section 6