Forensic Science Regulator
Overseeing Quality

DNA Analysis Specialist Group

Minutes of the twenty-ninth meeting held on 14 May 2019, at Crowne Plaza Birmingham City Centre, Holliday Street, Birmingham.

1. Welcome and introductions

1.1 The temporary chair the FSRU representative welcomed all to the meeting. The chair welcomed a new member to the group a representative from the Defence Science and Technology Laboratory (Dstl). See Annex A for a list of representatives present.

2. Minutes from previous meeting and previous actions

2.1 The minutes of the last meeting were agreed as an accurate reflection of the discussions held and were approved for publication on the Regulator's website.

2.2 Actions from the previous meeting discussed. The only outstanding action was; Action 1: 'To give examples of key papers suitable for meeting CPR rules on disclosure of published papers relied on in providing expert opinion'. The Regulator had previously advised that references should be included in statements to show range of opinion. It was felt for some specific subjects there were little or no reference papers available, and for some subjects there were too many reference papers available. The members were asked if the action should be progressed. The members agreed this was a challenging action, but it was important to progress it. The members suggested providing this feedback to the Regulator, and for the Regulator to decide if this action should be progressed.

Action 1: Provide feedback to the Regulator concerning action 1 from the previous meeting. There was difficulty in finding specific reference papers and how should this action be progressed.

2.3 Action 3: from May 2018, FSRU to carry out a review of emerging technologies, and their applications and distribute this to the DNASG. This action had been marked as complete. The FSRU were currently reviewing the document, and once reviewed this would be circulated to the group.

2.4 All other actions were complete or would be covered under later agenda items.

3. Review of the terms of reference (TOR)

3.1 The TOR for the group had been reviewed and updated. The members were asked if they were happy with the TOR. The members were happy with the changes and agreed this could be signed off and published.

Action 2: Secretariat to publish the DNA SG TOF on the Forensic Science Regulator's website.

4. Rapid DNA guidance document

4.1 Members discussed the skeleton Rapid DNA guidance document. The document had been developed using the outputs of the various workshops held for Rapid DNA. The members were asked if there was anything missing from this document and if there should be a small working group created to complete this work.

4.2 The members agreed a document providing guidance on Rapid DNA was required. A working group would be established to complete most of the work. It was confirmed input from the wider working group would be required to decide what topics should be included within the document. The volunteers who agreed to join the group were representatives from Eurofins, The Metropolitan Police Service, Dstl, and Key Forensics.

Action 3: FSRU to circulate current version of the Rapid DNA guidance to members to identify sections that are missing or sections that should not be included.

Action 4: FSRU to set up a working group to produce a guidance document for Rapid DNA. Representatives from AFSP, The Metropolitan Police Service, Dstl, and Key forensics will join the group. First meeting to take place in July 2019.

Action 5: Key Forensic representative to nominate an individual for the Rapid DNA working group.

Action 6: FSRU to email The Metropolitan Police Service representative to nominate an individual to join the Rapid DNA working group.

Action 7: AFSP representative to nominate an individual from the AFSP to join the Rapid DNA working group.

Action 8: Dstl representative to join the Rapid DNA working group.

Action 9: Key forensic representative to email their comments to the FSRU on the Rapid DNA document.

5. Ancestry DNA/genealogical databases

5.1 The Association of Forensic Science Providers (AFSP) representative presented this item. In recent months there has been significant media coverage of the use of genealogical databases within forensic investigations, for example the Golden State killer case. The method involves using “direct-to-consumer” (DTC) genetic testing which had led to the creation of large, publicly available databases containing detailed information on the DNA composition of individuals. The data collections were used primarily by amateur genealogists to trace close or distant family relatives.

5.2 It is this data that had been used by law enforcement to conduct forensic investigations. Using DNA that had been obtained from cold cases and were presumed to be from the perpetrator. A specific DNA test, which typically uses a high-density SNP array, is carried out on the DNA sample which is compatible with the DTC and other public genealogy databases. Once results are obtained, it can be compared with genealogical databases and checked for any potential links.

5.3 The ethical issues of using this technique were highlighted. There were concerns raised around consent of the individuals whom were providing their DNA samples. It was unclear if the individuals contributing and sharing their DNA data on accessible databases were aware that these could be used in investigations of criminal activity by law enforcement agencies, and that such investigations may implicate their own close or distant relatives in such crimes. In some cases, the access to these databases by law enforcement agencies may have involved some level of subterfuge (such as creating false identities) which could damage the integrity of the investigation.
Obtaining DNA from potential perpetrators who had been identified as a possible suspect, via this technique was another concern raised. It was unclear if the individual refused to provide a voluntary sample, could the police arrest the individual and obtain the DNA sample under PACE? It was recommended applying regulatory or other standards to this type of testing at a national and possibility international level. The standards could provide guidance on the types of cases considered appropriate for such testing, and the competence and integrity of the investigating genealogists.

5.4 The FINDS Strategy board had been presented with a paper on Genetic Genealogy for forensic investigations. The board had made some recommendations, and one of the recommendations was developing a framework for this type of work.

6. Work plan updates

6.1 a. YSTR

6.2 The YSTR guidance document had been progressing well. The document had not yet been circulated to the members. The working group were currently reviewing the interpretation section of the document. The group were awaiting some guidance from the AFSP on how to progress with this section. The AFSP representative provided the members with an update on this. The AFSP had held a meeting that had discussed how to resolve areas where there were differences in YSTR practices between some of the Forensic

Science Providers (FSP's). A small exercise had been conducted to provide examples of potential issues with YSTR results using different case scenarios. The examples were circulated to the AFSP members, and members had provided responses to the examples, explaining how they would have interpreted that scenario. The results were reviewed, and it was identified there were still differences in the interpretations provided by the different FSP's.

6.2 The AFSP would be producing a summary of the results of this exercise. This would allow them to highlight the areas that need to be addressed. Once the results had been summarised the AFSP would share this with the YSTR working group.

Action 10: AFSP representative to find out the time scale of completion for their YSTR exercise and update the FSRU and YSTR working group.

6.3 b. DNA codes of practise

6.4 A few documents had been revised due to changes to ISO 17025. A working group was required to review the DNA codes of practice document (FSR-C-108) and highlight any changes and additional information that needs to be added. The members of the working group were confirmed as Forensic Information Databases (FINDS) representative, Forensic of Northern Ireland representative, Chartered Society of Forensic Sciences representative, and UK Accreditation Service (UKAS) representative. The current version of the DNA codes of practice document would be sent to the working group for their comments and review.

Action 11: FSRU to send the DNA codes of practice document to the working group members for review, and feedback. The working group included representatives from, FINDS, Forensic Science of Northern Ireland, Chartered Society of Forensic Sciences, and UKAS.

6.5 c. Relationship testing

6.6 The Relationship Testing Quality Standards Specialist Group (RTQSSG) were developing a standard for relationship testing (FSR-G-228). The document was progressing well. There was one section of the document that required further information from the ENFSI. Once completed the document would be circulated to the wider group for comments and feedback.

6.6 d. DNA mixture proficiency

6.7 The DNA mixture proficiency document (FSR-G-224) had now been completed. The sub working group had made some comments on the document. The document was now ready to be circulated to the wider group for comment and feedback. The members were asked if they had any comments on the document they would like to raise. A member queried what guidance would be provided to individuals or companies whom would only analyse the data, and do not do the profiling itself. It was confirmed this had already been addressed in the document. A member queried if there was a plan for generating more profiles. It was confirmed it was the responsibility of the companies who were providing

PT's to consider how they would do that. A member queried complex mixtures concerning unrelated individuals as contributors and adding related individuals into the mixtures. It was agreed this could be added to the document.

6.8 e. DNA profile Interpretation

6.9 Due to the implementation of the DNA 17 profiling technique, a guidance document that included this technique was required. A recommendations document had been produced, and now this document would need to be converted into a guidance document. The sub group had been working on the document. The document (FSR-G-213) was now ready to be circulated to the wider group for their comments and feedback. Members views would be sought for updating the technical information, and references within the document.

6.9 The three documents would be circulated to the members one at a time. The members agreed that the DNA mixture proficiency document was a priority and should be circulated first. This would then be followed by the Relationship Testing document, and finally the DNA profile Interpretation document. Members would be given a couple of weeks to provide their feedback before being sent the next document.

Action 12: FSRU to circulate the DNA mixture proficiency document to members for comment. This should be circulated first.

Action 13: FSRU to circulate the relationship testing document to members for comment. This should be circulated second.

Action 14: FSRU to circulate the DNA profile interpretation document to members. This should be circulated third.

7. Stakeholders updates

7.1 a. UKAS update. The surveillance visits this year for the transition to the new updated version of the standard was progressing well. There had been a lot of activity with the fingerprint comparison labs, and most them were close to or achieving accreditation. This was because of the secondary legalisation being implemented. The secondary legalisation was as a result of EU Council Framework Decision from 2012. All DNA and fingerprints used in evidence should be accredited to ISO 17025. It now requires UK law enforcement agencies to use an accredited forensic services provider to conduct any laboratory activity which results in a DNA-profile or dactyloscopic (fingerprint) data. UKAS had started pre-assessments for the scene of crime accreditation for police forces. The pre-assessments would be focusing DNA swabbing, fingerprints and possibly footwear.

Action 15: Secretariat to circulate information about the secondary legalisation in relation to DNA and fingerprints to members.

7.2 b. FINDS update. Members were provided with an update on the Contamination DNA Database (CED). It was confirmed there had been several matches generated. This had resulted in crime scene stains being removed from the National DNA Database (NDNAD). There are currently discussions on-going with manufactures and Sexual Assault Referral Centres (SARCS) on uploading their samples to the CED database.
In February 2019 Transforming Forensics held a workshop. One of the work streams was to incorporate YSTR and additional loci on the NDNAD. There had been two working groups set up. The first working group would look at match reporting, and the second working group would look at YSTR and increasing the number of loci.

7.3 Professional and scientific updates

7.4 a. Association of Forensic Science Providers (AFSP) DNASG

7.5 The working group had met recently and were joined by a representative from Dstl. It was confirmed a Dstl representative would be a member of the AFSP DNA working group. The AFSP received an overview from the Dstl representative on their various research activities. It was suggested for future meetings and discussed under professional and scientific updates, it would be useful to receive an update on any DNA research in the UK. The Dstl representative agreed and would update members with any relevant research at future meetings.

Action 16: Dstl representative to circulate presentation on their work.

7.6 The AFSP DNASG were close to finalising their briefing paper on next generation sequencing applications. The paper should be completed within the next couple of weeks. Once the paper was completed this could be circulated to the members.
The AFSP had provided comments and feedback on the DNA best practice guide.
It was confirmed the mixture collaborate study was close to completion; however, a publication date could not be confirmed at this time.

Action 17: AFSP DNASG representative to circulate their briefing paper on next generation sequencing applications to members once completed.

7.7 b. ENFSI

7.8 There was an ENFSI DNA working group meeting held in May 2019. The ENFSI DNA working group were split into five working groups, and each group had a specific area to work on. The Quality Assurance group (QA) reviewed and updated the ENFSI training guidelines. The group had received an interesting presentation on the validation familias and pop stats. The working group were currently working on the ENFSI validation document. The group had sought views on what should be included within the validation document. It was suggested Rapid DNA, and NGS should be included within the document.

7.9 The DNA Database Management working group. The group had received a presentation on the Spanish DNA database. The presentation provided members with an overview of the Prüm searching criteria. The group had discussed whether individuals should adopt a higher searching criterion. This could be useful for new countries joining up to Prüm. The working group had also received an update on the Scottish DNA database. They were in the process of updating their old SGM profiles.
The members received an update on the Finland DNA database. This database had been in operation for over 20 years. They were considering creating a missing persons DNA database.
There had been a global update provided on the DNA databases. The Rapid DNA Legalisation pilot was currently taking place in five US states. Genealogy DNA testing had also been discussed by the group.

7.10 The ENFSI DNA Analysis Methods and Interpretation subgroup provided a brief update. The group had been provided with updates concerning various interpretation projects. The group discussed mitochondrial DNA, and the improvements made to this technique which could be useful for obtaining DNA from hairs and degraded samples.

7.11 The ENFSI Forensic Biology and casework working group provided an update on their recent meeting. The group received a presentation on the Spanish genetic forensics. The group had discussed a murder case in Spain which was a cold case from 1998. The YSTR profiling had been used 18 years after the murder to identify the suspect. YSTR profiling had been performed on individuals in the area of the murder, and one individual shared a high percentage of his nuclear DNA with the killer. Further investigations identified a sibling who was identified as possible suspect.

8.0 a. Other ISFG/EuroForGen

8.1 The EDNAP would be shortly publishing their collaborative research outcomes. This would include:

- Age determination from blood using methylated DNA methodology.
- mRNA and cSNPs to identify body fluid and differentiation of donors to mixed stains using MPS technologies.
- Real-time quantification method for combined autosomal, Y and mtDNA.A new collaborative exercise was being planned for mtDNA heteroplasmy.

8.2 The members were provided with a brief update on the Visage project. They had developed basic and enhanced tools for appearance, ancestry and age using MPS technologies. Basic tool includes hair and eye colour and continental ancestry; enhanced tools adds information on eyebrow colour, hair morphology, freckles and male pattern baldness, ancestry to include middle eastern and north African ancestries. The tools are being provided to practitioner groups for evaluation.

8.2 Members were provided with a brief update on EUROFORGEN. Publication ‘Making sense of forensic genetics’ was now being updated and translated into Spanish, German, Italian, Portuguese and Hungarian.

Publication ‘A comparative audit of legislative frameworks within the European Union for the collection, retention and use of forensic DNA profiles’ was being updated to include recent changes to the legislation.

8.2 An ISFG update was presented to the group. The ISFG meeting was being held in Prague (9-14 September) with around 750 submitted abstracts. Travel bursaries were available for applicants.
ISFG offers short term travel fellowships for those members who wish to spend a short time in another member laboratory for training. They provide 1000 EUR within Europe and 2000 EUR outside Europe. The next deadline is 15 October 2019.
Summer training schools are planned biannually with the next being held in 2020.

b. Body fluid forum

8.3 Members were presented with an update on The Body Fluid Forum (BFF) project. The project examined the differences in the levels of DNA, in a simulated social contact and sexual contact. Dummies were used to create the scenarios. The results from these scenarios were being analysed by an FSP. Dundee University were proposing a project that would examine how far DNA and body fluids can travel.

9. AOB

9.1 The membership list for the group required updating. Members would be asked to provide their current representatives names, and email addresses.

Action 18: Secretariat to update membership list. Members would be emailed requesting up to date contact information.

10. Date of the next meeting

10.1 The date of the next meeting was confirmed as the 20 of November 2019 in Birmingham.

Annex A

Organisation Representatives Present:

Forensic Science Regulation Unit (chair)
Forensic Science Regulation Unit
Forensic Information Databases Service (FINDS)
Forensic Science Ireland
Eurofins Forensic Services
Key Forensic Services
Forensic Service of Northern Ireland
UK Accreditation Service
Cellmark Forensic Services
Chartered Society of Forensic Sciences
Dstl
Cellmark Forensic Services
HO Secretariat

Apologies:

Principal Forensic Services (chair)
Forensic Science Regulator
Kings College London
Eurofins Forensic Services
Scottish Police Authority Forensic Services
Metropolitan Police Service
Crown Prosecution Service
Key Forensic Services