

DNA Analysis Specialist Group (DNASG)

Note of the fifteenth meeting held on 19 November 2020, via teleconference.

1. Welcome and introductions

- 1.1 The Chair welcomed all to the meeting. A list of attendees by organisation is available at Annex A.

2. Minutes of the last meeting, actions and matters arising

- 2.1 The following matters arising from the previous DNA SG meeting were discussed:
- a. Action 1 (11.06.20): Secretariat to move November 2019 minutes to an accessible format and publish.
 - b. Action 2 (11.06.20):
 - c. Action 15 (11.06.20): There had been no response to the International Society for Forensic Genetics (ISFG) representative's enquiry about the guidelines for mixed Y-STR profile interpretation. The ISFG representative informed the group that the findings from the EDNAP collaborative exercise should have been shared with participants and provided a copy for the secretariat to circulate.
- 2.2 All other actions were complete.
- 2.3 In the previous meeting the group discussed the guidance for collection of elimination DNA samples from recovery vehicle operatives and further information had been circulated ahead of this meeting regarding processes for vehicle recovery.

- 2.4 The group agreed that elimination samples did not need to be taken routinely and a similar approach to that taken with interpreters was suggested, where details are recorded in case a sample needs to be taken at a later date.
- 2.5 The group highlighted that recovery operatives should be asked to wear facemasks in addition to gloves when entering vehicles.

Action 1:

- 2.6 The Regulator to feedback to Forensic Collision Investigation Network that recovery contractors should be asked to wear facemasks in addition to gloves. An option to taking CED sample is to record full details of recovery driver in case sample required in future.

3. Work plan updates

- 3.1 The group were provided with an update on the work plan:
 - a. The publication of three standards; Rapid DNA, FSR-G-229; Y-STR, FSR-G-227; and Relationship testing, FSR-G-228, was planned for January/February 2021. There would be further discussion of these documents later in the meeting.
- 3.2 The group were asked about the watching brief for mRNA which has not been discussed for some time. No Forensic Science Providers were reporting mRNA at the time of the meeting, however the group requested that this topic remain on the watching brief.
- 3.3 Consideration of Massively Parallel Sequencing and Genetic Genealogy techniques had been added to the workplan as agreed at the last meeting.

FSR-G-227

- 3.4 The Group had been provided with a working draft of the updates to the FSR-G-227 document on Y-STR. There were no significant changes to the document and the group were asked for any final comments before a final version of the update was agreed.
- 3.5 The Regulator highlighted section 7.2.3 of the document referring to evaluation of mixed Y-STR profiles with a major contributor of DNA, which did not align

with the mixtures guidance. The Regulator asked that a caveat be added that care should be taken with mixture interpretation.

- 3.6 The Regulator also highlighted section 8.3.4 which discusses whether a suspect- or scene-anchored approach should be used. The rationale for selecting an approach in autosomal DNA analysis relates to the fixation index (F_{ST}) and this is not relevant in Y-STR analysis. The Regulator sought the views of the group on recommending a scene-anchored approach for Y-STR analysis.
- 3.7 The representative from Eurofins Forensic Services (EFS) queried whether it would be contradictory to recommend a suspect-anchored approach for autosomal DNA and scene-anchored approach for Y-STR. The rationale for the difference may need to be explained to the courts and defence.
- 3.8 The Regulator proposed that at section 8.3.3 an explanation of the use of a scene-anchored rather than suspect-anchored approach for Y-STR analysis be added, this was supported by the EFS representative.
- 3.9 The representative from the Scottish Police Authority Forensic Services (SPA FS) noted:
- at 8.3.2 'guidance is required as to which population group is appropriate', seemed more of a statement and proposed that 8.3.3 and 8.3.4 were indented as follow on points.
 - at 8.3.4a, more guidance was needed regarding when a database should be considered too small and the Western European Dataset should be used.
 - in Section 9, which detailed what should be included in reporting statements, consideration should be made of adopting the ISFG recommendation to use likelihood ratios.
- 3.10 The representative from FINDS sought clarification over the inclusion of UK and Ireland in section 9.3a and whether the Y-STR database would be UK and Ireland. This related to a Y-STR project to establish a Y_STR frequency database being run by FINDS and whether samples should be collected from Ireland.

- 3.11 The representative from IFSG noted that Kings College had a large number of Y-STR samples from Ireland and would confirm whether these samples had already been profiled and added to the Western European Y-STR database (Y-HRD).

Action 2:

- 3.12 IFSG representative to confirm what data on Irish Y-STR profiles had been shared and with which databases.

- 3.13 The Regulator raised a point regarding 9.2.1b on alternatives to statistical evaluation. To ensure alignment with FSR-G-222, the Regulator proposed adding:

such an expression is unlikely to be informative

after

Expressions of possibility should not be presented in a manner that favours the prosecution.

- 3.14 Also, the Regulator requested that at 9.2.1c the following text:

The FSP may provide a qualitative or subjective evaluation, supported by alternative statistical approaches

Be amended to:

The FSP may provide a qualitative or subjective evaluation if it is supported by alternative statistical approaches.

- 3.15 These changes were agreed by the group.

- 3.16 A member also raised a query about the use of likelihood ratios in FSR-G-227 and suggested that autosomal DNA and Y-STR results could be combined on the basis of independent loci.

- 3.17 The representative from Forensic Science Ireland informed the group that they would use that approach on a case-by-case basis.

- 3.18 The Regulator noted that increased use of likelihood ratios was the intended direction, and this should be included in FSR-G-227.

Action 3:

- 3.19 The representative from the FSRU to follow up on the members comments on the Y-STR guidance document.

FSR-G-228, Relationship testing

- 3.20 The representative from the FSRU asked the group for any final comments on the relationship testing guidance ahead of returning it to the sub-group.
- 3.21 A typographical error was noted with a percentage at point 16.1.16.

Action 4:

- 3.22 FSRU representative to correct 16.1.6 in FSR-G-228 and review proposed changes with the sub-group for final review.

FSR-G-229 – Rapid DNA Devices

- 3.23 There were a number of unresolved comments in this document following the Regulator's workshop on Rapid DNA devices. The aim was to review the document and provide an updated version to the Quality Standards Specialist Group for review.

Action 5:

- 3.24 FSRU representative and sub-group to review the Rapid Devices guidance and provide to the Regulator's Quality Standards Specialist Group in January.

DNA 'Futures'

- 3.25 Following a presentation to the Regulator's Forensic Science Advisory Council on Massively Parallel Sequencing (MPS) the Council sought guidance from the DNA SG on the sorts of cases that might be viewed as appropriate for MPS. This would assist with consideration of intrusiveness and proportionality issues.
- 3.26 The group sought clarification as to whether the focus was on use of phenotypic indicators or on all of the applications of MPS and the Regulator confirmed it would be on all applications.

- 3.27 Clarification was also sought as to whether intelligence leads should be considered as well as evidential applications.
- 3.28 The group agreed that the quality standards that the Regulator would need to consider would apply to all the aspects of the use of MPS and the types of cases that it might be useful in would be different depending on the particular application, however they would all need to be considered.
- 3.29 The group agreed to set up a working group with representatives from organisations currently using or soon to begin using MPS.

Action 6:

- 3.30 Add a DNA Futures working group to the work plan to consider next generation sequencing applications.
- 3.31 The group were informed that the Regulator had taken an action from the Forensic Information Databases Strategy Board to consider the criteria for the use of genetic genealogy techniques for law enforcement. The issue for the Regulator was the management of the scientific quality aspects of the use of genetic genealogy.
- 3.32 A meeting of key stakeholders was planned for December to discuss approaches to the use of genetic genealogy in law enforcement and part of this would be to consider quality standards.
- 3.33 The group agreed to consider the quality aspect following the outcome of the stakeholder meeting.

4. R v Jones Judgement

- 4.1 In the case of [R. v Jones \[2020\] EWCA Crim 1021](#) the two DNA experts in the cases agreed a number of points about a mixed DNA result. Paragraph 12 of the agreed points was:
 - Since the tiny traces of DNA or skin involved in such transfer are invisible to the naked eye, it is not realistic to expect anyone to be able to account for the ways in which their DNA may have been transferred by indirect methods
- 4.2 In the judgement handed down it was noted that the breadth of the formulation of paragraph 12 was unwise and that expert evidence should have been

confined to purely scientific questions, leaving open any issue as to the surrounding facts.

- 4.3 This has been raised at the DNA SG for information as this is a subtle point and there may be other experts who would word their statements in this way and should be aware that this may be criticised by the courts.

5. COVID-19 impact discussion

- 5.1 The group were asked to report on the impact of COVID-19 on the provision of their work.
- 5.2 Shortages of chemicals, Copan swabs, mini-tapes, pipette tips and plastic consumables were noted as well as difficulty in obtaining q-PCR equipment.
- 5.3 An additional validation was required when a piece of validated equipment could not be sourced, and an alternative had to be used.
- 5.4 Travel restrictions had also affected site visits by engineers for equipment maintenance.
- 5.5 The group reported that productivity had not been affected with providers operating rotating, two team systems and carrying out work at home where possible.
- 5.6 The Regulator noted that there had been two quality failures reported relating to COVID restrictions, one relating to sample witnesses while maintaining a two-metre distance, and the other relating to shorter opening hours of a vehicle recovery garage and carrying out two examinations prior to writing up.
- 5.7 The major change reported was the movement of case-files to employee's homes, or the remote access to case-management systems at home. As a result, additional security measures such as lockable briefcases, encrypted laptops, or file tracking had been implemented.

6. Stakeholder Updates

FINDS

- 6.1 The members were provided with an update from FINDS. The main points of the update were:
- a. A new head of unit had been in post since the beginning of August.
 - b. The new strategic DNA database (NDNAD2) had completed core functionality testing and solutions to defect found had been proposed ready for go-live in the next few days. Initial activity after go-live would be around fixes for defects identified. From April 2021 the project would move to development of items together with the Home Office Biometric Programme, such as proactive search on load between crime stains and the contamination elimination database.
 - c. A funding application had been put forward to the Home Office for the collection of samples/profiles for use as a Y-Haplotype Reference Database for the UK and the statistical implementation.

UKAS

- 6.2 The representative from UKAS informed the group that site visits resumed at end of September and site assessments were continuing with as much as possible been carried out remotely. UKAS were working with customers to tailor the assessments to their virtual facilities so some variation in approach.
- 6.3 The representative noted that as a result of COVID-19 restrictions there was a backlog on extension to scope assessments where on-site witnessing was needed.
- 6.4 It was noted that scene of crime assessments had re-started.

Professional and Scientific Updates

Association of Forensic Science Providers (AFSP) DNASG update

- 6.5 The draft DNA mixtures report had been reviewed and there were some comments to resolve before publication.

- 6.6 Work on standardised wording for reports and statements would be progressed ahead of the next AFSP meeting in the spring.

Chartered Society of Forensic Sciences (CSFS) update

- 6.7 The group were provided with a written update and the main points were:
- a. CSFS conference took place on the 6th of November online with a presentation from the Regulator and a DNA workstream with a series of presentations.
 - b. Two DNA experts had achieved Chartered Forensic Practitioner status.
 - c. The CSFS would welcome suggestions for events and workshops that would benefit the DNA SG.
- 6.8 The representative from the CSFS also offered to place a comment on their website regarding the R v. Jones judgement if it was felt this would be useful in order to reach more DNA experts.

European Network of Forensic Science Institutes (ENFSI) update

- 6.9 The group were provided with minutes from the online ENSFI meeting held in September 2020. Members of ENSFI would be able to download the meeting presentations from the organisation's website.
- 6.10 The representative noted that there were a number of European laboratories that had achieved accreditation for Massively Parallel Sequencing techniques.

International Society for Forensic Genetics (ISFG) update

- 6.11 The members were provided with an update:
- a. The 12th Haploid Markers Meeting (2020) would take place from the 9th to the 12th of June 2021 in Budapest; and the English-Speaking Working Group (2020) meeting had been cancelled and an online meeting was planned for 2021 and the next full meeting would be in 2022; the IAFS in Sydney had been postponed until 2023. The International ISFG Congress would be held in Washington in August 2022.
 - b. DNA SG members may be interested in the description of the combined software being used in the Netherlands in Peter Gill's recent book.

- c. The journal citation index had decided not to list any publications from FSI:Genetics and so there would be no impact factor from articles published in this journal. The JCI had argued that this journal was cited too frequently however the editors were appealing this.

Body Fluids Forum

6.12 The members were provided with a written update. The main points of the update were:

- a. A second representative from the Scottish Police Authority would join the body fluids forum for the next meeting.
- b. The forum had held two short, virtual meetings in June and October to progress on-going actions. The work of the forum had been affected by COVID-19.
- c. A presentation on the AFSP BFF Y-STR project was given at the CSFS conference on the 6th of November.
- d. The Y-STR and autosomal DNA analysis for the Y-STR project examining transfer of male DNA in simulated scenarios was complete and drafts of the report had been circulated to forum members for comments by the end of November 2020.
- e. Reports on several BFF projects had been completed and were in the review process and submissions for publication had been prepared for a further set of BFF projects and these were undergoing proof reading and final comment.
- f. The BFF planned a bulk publication of papers and short communications and had discussed this with the editor of Science and Justice and a guest editor had been agreed.
- g. The next BFF meeting would be the 2-3 February 2021.

7. AOB

7.1 At the last meeting the DNA SG were informed that the FSPs had agreed to move to using the term “at least” when reporting likelihood ratios and two papers were raised as an argument against the use of this term. A member requested that this be discussed at the next meeting. The representative from

the FSRU noted that this terminology was included in FSR-G-213 and may need to be reviewed.

Action 7:

- 7.2 Add to the agenda for the next meeting (May 2021) discussion of the terminology for likelihood ratio reporting; “at least” or “in the order of”.

8. Date of the next meeting

- 8.1 The next meeting to be held on in May 2021 and likely to be via teleconference.

Annex A

Organisation Representatives Present:

Principal Forensic Services (chair)
Forensic Science Regulator
Forensic Science Regulation Unit
Home Office Science Secretariat
Chartered Society of Forensic Sciences
Dstl
Eurofins Forensic Services
Forensic Information Databases Service
Forensic Science Ireland
Forensic Science Northern Ireland
International Society for Forensic Genetics
Key Forensic Services
Metropolitan Police Service
Scottish Police Authority (SPA) Forensic Services
United Kingdom Accreditation Service (UKAS)

Apologies:

Crown Prosecution Service (CPS)
Body Fluid Forum
Cellmark Forensic Services
Royal Statistical Society