



DNA Analysis Specialist Group (DNASG)

Minutes of the twenty-sixth meeting held on 28 November 2017, at 5, St Philip's Place, Colmore Row, Birmingham

1. Welcome and introductions

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

2. Minutes of the last meeting

- 2.1 The FSR informed the Group that in order to be compliant with future data protection legislation, minutes to future meetings will no longer contain the names of individuals, but instead comments and actions will be attributed to the organisations they represent.
- 2.2 Three minor amendments were recommended for change to the previous minutes:
 - a) Section 4.5: Change "FSPs should decline to conduct the work" to "FSPs should ensure that their report or statement explicitly makes clear the limitations of the work they had been commissioned to do."
 - b) Footnote 1 on page 3 should be removed – it contains a transposed conditional and is not actually needed.
 - c) Page 7/8 section 11.2: change "workshop" to "exercise" and "attend" to "participate"
- 2.3 Members confirmed the draft minutes and actions were an accurate reflection of the previous meeting.

3. Actions and matters arising

- 3.1 Action 3 – The Regulator has received confirmation that it will not be possible, within a reasonable timeframe, to rewrite the FSR-G-223 document to include guidelines.
- 3.2 Action 7 – It is confirmed that DNA SG Chair will chair the Relatedness Testing Subgroup which will occur on 28 November 2017
- 3.3 Action 15 – This is still in progress and the National DNA Database will discuss which data is required.

4. Standards – Mixtures Interpretation

a) Mixture interpretation feedback

- 4.1 This document, having been reviewed and edited internally, has now been reviewed externally. Majority of the comments received from external reviewers relate to typographical clarity and consistency. The Group confirmed that any simple amendments shall be made directly by the Chair without further consultation with the Group.
- 4.2 The Group noted, and thanked, the substantial and detailed contribution made by Maryland State Police, Forensic Sciences Division.
- 4.3 The following amendments to the “Mixtures document” were agreed within the group, items are listed by their paragraph number.

1.1.3 – The Group decided not to amend this section as it mainly relates to background information.

2.1.2f – The Group agreed to leave this section as it is as it is considered to be general comment.

5.2.4a – Concern was raised over the word “manageable” which is considered to be inappropriate. The Group decided to amend this sentence to read: *“There are so many peaks that there is considerable uncertainty with regard to the number of contributors.”*

5.8.1 – There could be ambiguity in relation to the number of minimum contributors and the Group wished to have a comment that was general enough to be applicable to whichever software was used. Additionally, many of the comments relating to section 5.8.1 are addressed accurately in 5.9, and section 5.8.1 already refers to section 5.9, therefore the decision is to make no further change to 5.8.1. The Group decided to leave 5.8.1 as currently written, with two minor changes to 5.8.1c.

5.8.1c – Should now read: *As a general rule it would seem preferable to assign a minimum value to the number of contributors to a questioned sample without reference to any of the reference profiles. However, this might be unnecessary and unrealistic in some cases (if the questioned profile has come from a vaginal swab in a rape case, for example, it would seem unreasonable to ignore the complainant’s profile).*

5.8.3b – Remove the text “resist the temptation” and substitute the phrase “non-zero” with “higher”. This section should also acknowledge the subjectivity of exclusions and may need to be reworded, if members have any additional thoughts on how this should be worded, they should send these comments in.

Action 1: Members to send in any amendments to section 5.8.3

Footnote 26 – amend the term “non-zero” to “higher”

5.8.6 – The term “information specialist” has been used to replace the specific title of “statistician”. The Group agreed this is an appropriate term in case organisations do not specifically employ a statistician.

5.8.6j – Generate a footnote for this section which indicates that the report referred to should not be on a form that is admissible in Court and should be marked as “not for evidence”. Members are asked to be vigilant to whenever these notes are used in a proceedings.

Action 2: Members to inform the FSR of any occurrences where inadmissible reports have been put forward for use in a proceedings.

5.9.2c – This comment overlaps with the CPR guidance which states experts should provide a range of likely opinions, a link to reference should be added.

Guideline 12 – edit this guideline to read *“practice of using the number of matching alleles as an aid ‘but not the sole determining factor’ to the evaluation of DNA mixtures should be discontinued because it is potentially prejudicial”*.

Guideline 13 & 15 – This guidance is considered useful, and should have an additional phrase added to it which indicates that some interim measures have not yet “been statistically evaluated”.

Action 3: To circulate the additional comments and appendix of comments from 6.6.1 for comment from members.

4.4 Members were content that no further drafts needed to be viewed by the Group.

Action 4: Members agreed for the Chair to finalise the document without further consultation with the Group.

b) Mixture software validation feedback

4.5 Members considered the second document “DNA Mixture Interpretation Software Validation FSR-G-223”. The following comments and amendments were recommended.

1.3.2f – the terminology of categories of software should be made consistent throughout the document, in particular reference to freeware, shareware, commercial products and in-house products.

6.2.1 – Several comments were raised in the feedback relating to the word “primer”, and the Group agreed to remove the word.

Concern was raised that Courts required information about how the software used was validated. It was beyond the ability of this Group to generate this information, however it was recommended that individual software providers could use a standardised paragraph to explain their validation process. The SPA have already developed this paragraph and the Group agreed that other providers should follow the same format for consistency. Once this has been developed, it will be added to “DNA Mixture Interpretation Software Validation FSR-G-223” as an appendix.

Action 5: SPA to forward their validation of software paragraph to other members.

Action 6: Software providers to submit their validation paragraph to the Chair for inclusion as an appendix linked to section 6.2.1.

6.2.2 d – It was decided that specific recommendations for software requirements, including audit trail, operating systems and software support, are not the remit of this Group. However, it should be added as a consideration for users in a way that is not prescriptive. Amendments 6.2.2 e and f were accepted.

6.3.1 – It was accepted that Table 2, which contains examples of ways to minimise risk, could be extended to include “the use of incorrect data or out-of-date software”.

6.5.2c – It was decided remove the final sentence of point c, as this is covered by the disclosure rules of the various jurisdictions. It should now read *“An alternative approach to publication as a means of demonstrating scientific acceptance of the conceptual validation would be for an organisation to commission an independent review by an external expert.”*

6.5.3 aiii – There is concern about the inclusion of the reference to Turing’s Theorem. The RSS will discuss this inclusion with Ian Evett and ESR and report back to the Chair.

Action 7: The RSS to discuss the inclusion of the reference to Turing’s Theorem in 6.5.3aiii with Ian Evett and ESR and report back to the Chair.

6.6.3 – This point might be addressed by reference to PAS754.

Action 8: The FSR to review PAS754 in collaboration with the Chartered Society for Forensic Sciences prior to modifying section 6.6.3

6.6.8 – This section should be addressed in a generic way by adding a comment such as *“The version of the software being used should be the version which was validated, with appropriate checks made when the software is updated”*.

6.9.2 – This section should be modified to remove terms such as “ball park” and “academic interest”. This section should be reworded and referenced back to the section on upstream validation.

6.12.1 – This section refers to the Certificate of Validation Completion as cited in the FSR codes of practice and conduct. 6.12.1g should be modified so that the “Question and Answer Document” refers back to the Certificate of Validation Completion.

7.1.4b – The wording of this section should remain as it is, and the words “often” should be changed to “sometimes considered insufficient”. This section should be reworded to mirror the previous section in the Mixture Interpretation Document 6.5.2c.

7.2.1 – The Group agreed that this point is clear and should remain as it is.

7.2.2 – This point was agreed to be downgraded from a recommendation to “it would be valuable”.

Additional Comments – It was decided that it would not be possible to utilise a global dataset that is representative of the individual organisation’s work. The group agree it would be important to encourage benchmarking by proficiency trials.

5. Work Plan Review

- 5.1 Three working groups are to be established to complete some of the tasks detailed in the Work Plan. These working groups could work via teleconference and email communication rather than face to face.
- 5.2 Interpretation Guidance to be published in 2018, and therefore the codes of practice for DNA needs to be reviewed and updated; Syntenic Loci output to be added to the DNA17 recommendation document and converted into a guidance document.
- 5.4 Mixtures Proficiency Testing Document – This is a draft document stemming from the mixtures trials test, it is currently a high level

document advising how to set up Mixtures PT. AFSP are currently running such a trial and can assist.

Action 9: Establish the working groups for the Syntenic Loci, Mixtures PT and the DNA Code Documents. Deliverables expected after April 2019.

6. Emerging Technologies

Y-STR subgroup meeting note and Quality Assurance Document

- 6.1 The Group were asked to review the Y-STR Working Group Meeting Note from 19 October 2017.
- 6.2 The subgroup have produced a document "Quality Assurance and the Use of Elimination Databases in Y-STR Profiling". This document is submitted to the DNA SG for approval.
- 6.3 The DNA SG were pleased with the document's content, however it was noted that the readability was difficult in places and a diagram, or flow-diagram, could improve its understandability.

Action 10: The DNA SG are asked to feedback to the FSRU on improvements to the layout of the document.

- 6.4 In terms of developing a national Y-STR database, the DNA SG were pleased to hear that an additional 3,400 haplotypes have been added to the YHRD, and a further collection has been identified in Scotland which will be added, pending funding.

7. FINDS Update

a. Y-STR Training

- 7.1 The scientists within the unit have had training in this area which has now expanded our knowledge base.

b. CED (Contamination Elimination Database) Update

- 7.2 Police Staff

The Forensic Science Regulator and the CED Project Manager met with the Police Staff Council (PSC) on 24th October to try and encourage national changes to mandate the taking of a DNA sample from existing staff for inclusion on the CED.

Recent correspondence from PSC remains unchanged regarding consent ... 'All existing police staff should be strongly recommended, but that it be voluntary, to provide a DNA sample in order that the

generated DNA profile can be searched for the purposes of identifying contamination.'

7.3 SARCS (Sexual Assault Referral Centres)

The project team is in contact with the Forensic and Secure Environment Committee (FSEC), (they represent and provides a UK-wide voice on issues affecting medical staff that work in certain areas - including SARCS), at the British Medical Association to gain their opinion on the DNA sampling of medical staff that are involved in the DNA supply chain for elimination purposes. FSEC has also been asked to consider the possibility that a positive return might occur for a medical member of staff, which may link them to a crime scene.

7.4 Information Commissioner

The ICO has received a number of complaints from individuals who feel their information has not been processed appropriately. Some of these issues arise from consent being sought via the sampling process when the police regulations supersede any subsequent consent. The ICO's view was '.... It is unusual for there to be a legal basis to take the samples (the Regulations) and then to require consent on top of that to process them. This, it seems, is causing confusion Consent forms are not clear and in some cases incorrect information is being given to individuals.'

In an attempt to mitigate confusion, a meeting was held on the 2nd November where it was deemed unnecessary for police officers/special constables to give consent. Subsequently the CED DNA consent form has been updated to reflect that Officers/Special Constables are not required to sign the form as consent is covered by 2003 Police Regulations and Special Constables Regulation 1965 respectively.

The new kit will be available at the end of December.

7.5 Manufacturers

The project team have had feedback from the pilot manufacturer on the CED documentation which was positive. Existing manufacturer records held in FINDS-DNA have been updated and we are just waiting on individuals from the pilot manufacturer to consent for their profiles to be held against the CED, this is expected by the beginning of December, after which we will be able to purge this collection against the NDNAD dataset.

c. DNA mixtures expert network – Streamline Forensic Reporting

7.6 The research activities have commenced, with the current activities being sourcing the FSP data (outcome from the mixtures match review

which took place earlier in the year) and the interpretation files generated for the mixture profiles.

- 7.7 A first draft outline from the Researchers for potential paths to improvement for mixtures has been received which gives a number of options:
- 1) Improve and regulate the procedures for deconvolution of mixtures in preparation for loading extracted profiles. At present, practices appear to vary between FSP's. It is generally the case, however, that the work is carried out by technicians, rather than trained court reporting scientists. This, on its own, would not solve the problem but could contribute to the solution.
 - 2) Prepare an investigative weight for a candidate profile before loading to the database. Software would be needed for this. The advantage here is that the entire dataset for the crime profile is available but the big limitation is that there is no suspect at this stage.
 - 3) Provide a more extensive flag for the extracted profile. At present, the SC profile is flagged as a mixture. One of the proposals, to be considered under this contract is to provide a classification of the mixture that may indicate the complexity of subsequent numerical analysis. If option 1 were considered then some kind of measure of uncertainty from the deconvolution process might contribute to the flag. Or, if option 2 were considered, then the "prior" (here "prior" and "posterior" are used in the sense of before and after the database search) investigative weight could be added to the flag and then might contribute to the formulation of the "posterior" investigative weight.
 - 4) Create an enhanced calculation to assist the police in assigning an investigative weight for the retrieved match. The advantage over 2) is that there is now a suspect profile. The disadvantage is that the full crime profile dataset is not available. We should see this as a potential improvement over the present system of counting matching alleles.

d. FINDS-SB-P002 The Forensic Information Databases Strategy Board Policy for Access and Use of DNA Samples, DNA Profiles, Fingerprint Images, Footwear images, and Associated Data

- 7.8 This is currently out for review, the policy has been updated and now includes Fingerprint images, Footwear images and Associated Data.

e. FINDS-P-040 International DNA and Fingerprint Searching Policy for the United Kingdom

- 7.9 This is currently out for review, the policy has been rewritten to include Fingerprints.

f. HOB programme

- 7.10 General update:
- a. Overall the project is progressing well. Our targeted date for Development completion in March 2019 is still on track, followed by 6 months of testing.
 - b. The team is growing – we have recruited a new Technical Business Analyst.
 - c. Development is delivering above target
 - d. Preparing for test phases in new year
 - e. Amazon Web Services planning is progressing with the view to migrate to AWS next summer.

8. Professional and Scientific Updates

a. Body Fluid Forum

- 8.1 The group were updated on BFF projects including DNA on penile swabs and underpants. This was presented at the Chartered Society of Forensic Scientists conference. This project is aiming to establish some data on background DNA for reference. The report is drafted and will be submitted for publication.
- 8.2 The hand swab project has been completed as further background data relating to detection of body fluid rather than DNA. This report is also drafted and will be submitted for publication.
- 8.3 In collaboration with the BFF, there is a social contact project being developed using dressed mannequins to recreate social contact situations.
- 8.4 There are several libraries of data available within various providers and the BFF, which have not yet been published. Work is underway to make these libraries either published or more readily available.
- 8.5 There is ongoing work by a variety of organisations looking into identification of body fluids using mRNA testing, but currently there is no coordinated approach to this test at present due to the infancy of the technology. The Group noted that as this technology is now emerging, the previous working group which looked into this technology may need to be reformed to examine its current usefulness.

Action 11: The Chair is to discuss with the FSR about reforming a working group to look at mRNA testing, this will be discussed and decided at the next meeting.

b. AFSP DNASG

- 8.5 Meeting was held on 27 November 2017. In addition to the approx. 3,500 Y STR haplotypes that were uploaded to the YHRD by Kings, a further 500 UK haplotypes will be uploaded by Leicester in the next release of the YHRD database before April 2018.
- 8.6 The group has been involved in reviewing the two papers which have been through the strategy group in relation to Y STRs, the impact of POFA and the future of the Y-STR database.
- 8.7 The group are in the process of initiating the AFSP Mixtures Exercise and are expecting returns by the AFSP contributors by the end of January.
- 8.8 There is a subgroup being developed on Next Generation Sequencing to which the AFSP is contributing on the use of NGS for forensic applications.

c. ENFSI

- 8.9 ENFSI have now developed a public and a separate specialist website. Due to funding requirements, ENFSI have been working to enhance the public facing website.
- 8.10 ENFSI members are able to review the responses to the recent survey online, and there will be a new survey released in early 2018
- 8.11 ENFSI have developed a task force as part of the European Forensic Science Area 2020, this will focus on: BPMs, data exchange, PT/CEs, training/ awareness, accreditation and Prüm data exchange.
- 8.12 The Group are asked to note the following documents:
- Publications:**
- Contamination prevention guidelines_ Issue 2
 - ENFSI guideline for internal validation of complex mixture software_Issue1
- Reviews for 2018:**
- Quality Assurance Program for DNA Laboratories (awaiting updated ISO 17025)
 - Training of staff
- Under Development:**
- ENFSI Human DNA Analysis BPM
- 8.14 The QA sub group plan to send out a survey in 2018, the responses will be compared to the previous survey results and whether there is

any change in monitoring, following publication of the contamination guidelines.

- 8.15 All five sub groups will have parallel session's running at the Spring meeting in Rome. Volunteers to present, or requests for agenda items, can be sent directly to the Chair and/or of the relevant sub groups or send to the secretary who can send forward on the request. The date of the meeting is 16-20 April 2018.

d. Other – ISFG/EuroForGen

- 8.16 The funding for EuroForGen has finished, but it has remained as a working group of the ISFG. The group are responsible for many useful publications.
- 8.17 There is a new language working subgroup in the ISFG and a non-human DNA working group run out of Austria. There is a requirement for non-human DNA information in case work.
- 8.18 The Group are reminded of the ISFG travel fellowships for those who wish to attend other laboratories.

9. AOB

- 9.1 There is an increase in research about forensic metagenomics, currently this is focusing on background data in urban environments.
- 9.2 The Group have been made aware of the increase in requests in Ireland for detecting Smart Water, but these requests need to be dealt with by the individual companies who supply the Smart Water.

10. Date of the next meeting

- 10.1 The date of the next meeting was confirmed as Thursday 17 May 2018 from 11am to 3pm.

Annex A

Organisation Representatives Present:

Principal Forensic Services
Forensic Service of Northern Ireland
Key Forensic Services
Scottish Police Authority
Chartered Society of Forensic
Sciences
Royal Statistical Society
Forensic Science Ireland
International Society for Forensic
Genetics
Eurofins Forensics
Cellmark Forensic Services
National DNA Database
Body Fluid Forum
Metropolitan Police Service
Forensic Science Regulation Unit
Forensic Science Regulator
Home Office Science Secretariat

Apologies:

Crown Prosecution Service (CPS)