



Forensic Science Advisory Council (FSAC)

Minutes of the meeting held on 13 November 2015
at Home Office, 2 Marsham Street, London SW1P 4DF

1. Welcome and apologies

- 1.1 The Forensic Science Regulator (FSR) Gill Tully welcomed those present to the meeting. See Annex A for the list of attendees and apologies.

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

- 2.1 The minutes of the FSAC meeting on 1st July 2015 were reviewed and agreed as correct.

Matters arising

- 2.2 The meeting reviewed the actions from the Forensic Science Advisory Council meeting on 1st July 2015. Five of the actions were either completed, or on the agenda to be dealt with in the meeting. In regard to the remainder:

- Action 2: No suggestions for a target date for CCTV (Closed Circuit Television) accreditation had been received from members. The image enhancement target date was set for 2017.
- Action 3: Roger Robson had provided the details of one digital analysis company who felt disengaged.
- Action 4: The FSR and UKAS (United Kingdom Accreditation Service) had held a first workshop on 10th November for northern police forces on scenes of crime accreditation, and would hold a workshop on 16th December for southern forces. Some commercial forensics providers were also involved.
- Action 5: The paper on second PM (Post Mortem) examinations proposed radical changes, which required primary legislation. These PMs would become a judicial decision, which was not in accordance with the current Coroners and Justice Act. The paper had been revised many times, and would be circulated to FSAC when finalised.
- Action 6: Roger Robson had obtained examples of expert statements to courts that were problematic, in that they lacked balanced consideration of alternative hypotheses, from reports reviewed by Forensic Access. He would ask Forensic Science Providers (FSPs) for further examples. Some of these statements had summaries suggesting balance, which was then not backed up by the main body of the statement. These statements could then be used by the FSR to consider the issue of evaluative evidence.
- Action 9: The issues relating to trace evidence and organisations had been

dealt with in the cognitive bias guidance, which was now available on the GOV.UK website.

3. DNA Mixtures Study

3.1 The recent work on DNA mixtures was summarised. The study was carried out shortly after the upgrade from SGM-plus to DNA-17 chemistries. This upgrade resulted in suppliers using different analysis kits, so the study was carried out to explore uncertainties in DNA analysis and interpretation, and contracted out to PFS (Principal Forensic Services), working with NIST (National Institute of Standards and Technology). Five test DNA samples were provided, four as liquid samples and the fifth as a data file. The study was completed by a wide range of analysts, typically three from each FSP, and their reports on the samples were anonymised. Most of the discrepancies in the analytical results were typographical or transcription errors, unrelated to the normal analysis process, while others were artefact peaks in the DNA profiles. Transposition errors might be avoided through automation.

3.2 Some of the statements based on the results of the analysis were unclear, as the propositions addressed had not been clearly set out. The likelihood ratio varied, with some providers giving qualitative opinions on their results. For the three-person DNA test profiles, quantitative opinions were not possible, for providers who did not have software tools to assist. Some variations arose because of the different DNA analysis software, which included open-source and commercial tools.

3.3 Twelve recommendations arose from the study. The FSR's DNA Specialist Group had reviewed the study results, and the FSR was commissioning external advice. The resulting guidance would be reviewed by DNASG and made available for public consultation. Guidance was needed on where the limits for complex mixture interpretation lay. The impact of the R v Dlugosz 2013 Court of Appeal judgement on use of evaluative evidence needed further consideration.

3.4 The statistical results varied depending on the amount of DNA data used in the analysis, with different analysis software giving different results. AFSP (Association of Forensic Science Providers) offered to help with further such DNA analysis trials, and FSAC would be consulted. More challenging trials had been recommended to NDU (National DNA Database Delivery Unit).

Action 1: Mark Pearse to facilitate AFSP support for further DNA mixture studies.

3.5 On syntenic loci, which were potentially linked because located on the same chromosome, the DNA Specialist Group would draft guidance by March 2016. The linkage only affected DNA samples from very close relatives, including incestuous progeny.

4. Drug Driving legal limits - update

4.1 The paper on drugs driving legal limits was summarised. To avoid inconsistencies in the results from different forensic service providers, a common reporting threshold, for levels of drugs in the blood of a driver to be reported as over the legal limit was established. Initially in March 2015, the expanded uncertainty levels for the drugs results were set at either (a) the highest of the figures determined by at least three FSPs or (b) fifty percent, where fewer than three FSPs had data. Many of the FSPs had then only validated analysis of one or a few drugs. Most uncertainty levels had been reduced significantly in September 2015, following a meeting between FSRU, Home Office CAST (Centre for Applied Science and Technology), DfT (Department for Transport) and CPS (Crown Prosecution Service), when more FSPs had accreditation. By that time DfT had added Amphetamine to the list of drugs. The new expanded uncertainties and common reporting thresholds for the drugs were then issued to all the suppliers for use. Two documents were in draft on drugs driving analysis. One was for publication, setting out the limits and procedures, and was currently under review by CAST. The other document had background information on the methods used to reach the agreed figures, for future reference.

Action 2: Both the publication and the detailed background document on drugs driving legal limits to be circulated to FSAC.

4.2 The alcohol testing method could not be mirrored for drugs testing, as it used four replicates. The 10ml blood sample, set by DfT, and then split into two x 5ml samples for the defence and the police, was too small to achieve four replicates with some of the drugs. This led to an increased risk of a borderline result being declared positive, of approximately 1 in 90,000. The RSS (Royal Statistical Society) was being consulted about alternative methods for calculation. The legislation also allowed for limits of drugs in urine to be set. However, none had been, given the difficulties determining what appropriate limits in urine would be. The drug driving offence applied across the UK, but the existing limits only applied to England and Wales.

4.3 For the suppliers, each drug added to the panel tended to increase the uncertainty levels of all the measurements, as there had to be a degree of compromise. Because the drugs were extracted from blood, the uncertainty in the measurements was higher than when dealing with alcohol. Any new supplier would need to perform analysis at less than the stated levels of uncertainty. The uncertainty levels from suppliers were reasonably consistent in practice.

4.4 The term expanded uncertainty was related to how far the distribution of measured drugs levels varied from the mean. Effectively a value of three standard deviations was being used to be sure that the measured amount was above the legal limit. In the alcohol process, DfT and FSS (the then Forensic Science Service) made four measurements, but did not reflect this in the determination of the uncertainty. Thus its guard band was effectively at six standard deviations.

4.5 Robust defence of drugs driving cases was expected. The prosecution would be obliged to declare if the blood sample was mishandled. DfT might amend the sample handling process, with the police processing sample "A", and

sample “B” being stored by the FSP or the police in controlled conditions, until it was analysed by the defence.

Action 3: The diagram showing the expected form of the distribution of drugs measurements to be circulated to FSAC.

5. Firearms accreditation requirements

5.1 When the approach to firearms accreditation had been discussed at the July FSAC meeting, views had been evenly split for and against the proposed scheme. The FSR then commissioned advice on how simple firearms classification and triage could be defined. Subsequently the FSR decided that simple classification and triage of firearms would be permitted outside the ISO 17025 standard, provided that a quality framework for the process had been set up. Precise definitions for the simple firearms categories has been drafted.

5.2 Complex firearms assessments needing separate accreditation: for example firearm muzzle velocity and chronograph measurements. It would be added to the FSR’s accreditation requirements documents. Police forces would be informed of the details of the firearms accreditation scheme.

Action 4: The FSR to write to ACC Mark Hopkins, chair of the NPCC (National Police Chiefs’ Council) Performance and Standards Committee, the Forensic Firearms Futures Working Group, the CPS and relevant forensic service providers, providing details of the new firearms accreditation requirements.

5.3 The following points arose:

- The firearms paper currently lacked an example in section 6 on a small measurement being erroneously used to classify a firearm.
- A reference in the paper to a manufacture date of “1919” should read “1939”.
- In one case an apparently meaningless calibration certificate had been provided with the chronograph used to assess firearms. The FSR was raising this with the manufacturer.

6. Cell site analysis update

6.1 Forces differed in their approach to cell site analysis, in particular on levels of activity, validation and the equipment they used. Few forces reported giving expert evidence in court. It was now planned to draft an appendix to the FSR codes on the topic. This would include:

- setting forensic strategy,
- analysis of call data,
- radio frequency survey,
- preparation of mapping exhibits, and
- evaluation and opinion.

The appendix would be finalised by the end of November 2015, and then circulated to the relevant FSPs.

6.2 A pilot on cell site analysis was being designed, since UKAS had not previously accredited this activity. Only organisations which had obtained or applied for accreditation (in any forensic activity) would be considered for inclusion in the pilot. Once the pilot was completed, the earliest practicable date would be set for accreditation. This would not be until after 2017, as applicants required at least twelve months for the accreditation process.

6.3 The following points were made:

- There was an expert group chaired by the CoP (College of Policing) related to cell site analysis.
- Cell site analysis could be included under either the ISO 17020 or the ISO 17025 standards, with the surveys being under ISO 17020.
- ACC Mark Hopkins, who led the NPCC Performance and Standards Group, had encouraged forces to join the pilot.

7. Digital scope / digital forensics accreditation

7.1 Previously the accreditation date for all areas of Digital Forensics was set at 2017, but some areas were now defined as out of scope for this date, as per the paper. The term triage was a misnomer for digital, as this process included not only prioritisation, but also some analysis.

7.2 Many police forces used digital kiosks, some of which were suitably controlled, but others might not be fit for purpose. Where digital tools were deployed widely in large numbers for use by frontline officers, forces would need to hold accreditation for one model deployment of each.

8. Table of accreditation dates for FSR Codes of Practice and Conduct

8.1 The following points arose:

- There was an issue of new drugs to be analysed, as it was difficult for providers to be up-to-date on these.
- The College of Policing documents on presumptive drug testing confused the Home Office Circular's drugs testing system with the EDIT (Evidential Drug Identification Testing) process for drugs. Work was underway to address this.
- The drugs and toxicology sections in the statement of accreditation requirements had been revised to reflect the fact that there was necessarily a lag between commencing analysis and gaining accreditation for a new drug.
- The crime scenes section now explicitly included vehicle collisions and fire scenes.
- For footwear impressions the accreditation date was now firmly set as 2017, instead of this being a potential date.

Action 5: Katherine Monnery to invite Jeff Adams to the UKAS meeting on drugs analysis standards.

9. Court primers on Fingerprints and other topics

9.1 The Lord Chief Justice had requested drafting of primers on the agreed scientific evidence in each area of forensic science, aimed at the judiciary or intelligent jurors. The first primers required were for DNA and gunshot residue forensic analysis. These were intended for judges, juries and counsel. Professors Sue Black and Niamh Nic Daiéd had asked the Royal Society and the Royal Society of Edinburgh to be involved. Both of these societies had set up a working party, and their conclusions were awaited.

9.2 In relation to the fingerprints primer previously drafted by the Fingerprint Quality Specialist Group, progress was stalled both because of the considerations set out in paragraph 9.1 above, and because it described the standard UK analysis method, as opposed to a summary of agreed scientific opinion. Therefore it had not been circulated. FSAC wished to review its style/format in terms of user-friendliness for a court and jury, so the FSR would circulate the latest draft, with the caveats that the scientific content would change, and that production of primers was currently being led by Professors Black and Nic Daiéd, with the Royal Societies.

Action 6: FSR to circulate the draft courts fingerprints primer to FSAC, with a caveat on the eventual content.

10. Case review pilot study

10.1 Concerns had been raised about the impact of fragmentation and poor case strategy on the quality of forensic science provided to the Criminal Justice System (CJS). FSAC had therefore agreed in 2013, to a review on this. The level of resource required to perform a review was unknown. So a pilot exercise was under way, managed by a forensic expert from the National Crime Agency (NCA).

10.2 The pilot was considering rape cases, because these were allocated less resource than murder cases, involved a range of scientific disciplines, and thus had scope for fragmentation of the forensic evidence. The pilot considered the entire process from the crime scene to the court appearances, and also included further rape cases that had not been progressed to prosecution and court. One force participating had identified suitable cases to be studied, but the other force was only able to find examples of cases they felt had been handled well, but not ones they felt had been handled poorly.

10.3 Fragmentation was continuing to be reported to the FSR as a problematic issue. The study was needed to establish whether there were only occasional cases suffering from fragmentation of the forensic evidence, or whether this was a systematic problem.

Action 7: Adrian Foster of CPS to provide the FSR with examples of good and poor rape cases for the case review pilot.

Action 8: Judge Mark Wall to locate relevant rape cases for the case review

pilot.

11. Cannabis Yield determination

11.1 The issue was to assess the potential yield of cannabis from illegal growing cannabis plants seized by the police. The current practice involved a significant degree of variation, and existing guidance was not sufficiently prescriptive. The Drug Expert Witness and Valuation Association was updating its guidance to address this issue.

11.2 UKAS had assessed the current methods of accredited bodies for cannabis yield determination, and concluded that accreditation could not be maintained in this area, because processes were not sufficiently analytical, specified and consistent, although it felt that improvements were possible. Thus there was a need to produce a document setting out the requirements for an organisation to meet in order to be accredited. FSPs which carried out the drugs work would send comments.

12. Cognitive Bias Effects Guidance

12.1 The FSR's Cognitive Bias Effects guidance was being published. It included sections on:

- Fingerprints,
- Footwear, tool mark and firearms comparison,
- Particulate trace evidence (including hair and fibre), and
- Video and Audio.

12.2 As there had been press interest in this area previously, it was expected again on publication.

Action 9: FSAC members to provide feedback to the FSR on the Cognitive Bias Guidance document.

13. Medical Forensics

13.1 The FSR's Medical Forensics Specialist Group was producing standards for SARCs (Sexual Assault Referral Centres). Commissioning of SARCs had recently been transferred from police control to NHS England control, so that the Care Quality Commission had become involved in their inspection. The FSR had held early discussions with CQC on how the medical and forensic inspection regimes for SARCs might be combined, and would meet with UKAS and HMIC (Her Majesty's Inspector of Constabulary).

13.2 The following points were made:

- Nick Ephgrave, the NPCC lead for police custody had been contacted, as he was working on a new national police custody strategy.
- In the more remote areas of Scotland there were sometimes too few doctors available for different doctors to perform medical examinations of multiple

suspects in custody. The Lord Advocate had forbidden forensic nurses from doing this work.

14. Digital Validation

14.1 An earlier version of the Digital Validation document had been circulated, and resulted in controversy with forces, so non-core topics such as audio, video and cell site analysis had been removed from it, and much additional revision had been carried out. The document would be issued for consultation in November/December 2015, and it would be finalised in January 2016.

14.2 The following points were made on the new Digital Validation draft:

- The latest circulation had resulted in some comments of support, and other comments that it required too much work.
- Some forces were unaware of the ILAC (International Laboratory Accreditation Cooperation) G19 guidelines for forensic laboratories in this area.

14.3 Comments were welcomed, especially on the executive summary and section 6 (scale of validation required), and were to be sent to the FSR Consultation 2 email address.

15. Blood Pattern Analysis Appendix

15.1 The implementation date for the Blood Pattern Analysis appendix to the codes was 2017. It required in particular that specialists assess the uncertainties in their blood pattern analysis results. The document had achieved a good consensus with forces and FSPs.

Action 10: Any further comments from FSAC on the Blood Pattern Analysis document to be provided promptly to the FSR.

16. DNA laboratory anti-contamination guidance

16.1 The DNA laboratory anti-contamination guidance was ready for publication in December 2015. However, the FSR's QSSG (Quality Standards Specialist Group) had commented that it had the status of guidance but used the language of a standard. Thus an explicit statement would be added to explain this apparent discrepancy. After a set period the guidance would be redrafted as a requirement.

- UKAS and the FSR would review the document.
- After publication any new-build DNA analysis laboratory would be expected to meet the new standards.

17. Evaluative Interpretation guidance

17.1 Evaluative interpretation was debated in the court case of R v T (2010) in relation to footmark evidence. It was important that limited datasets could continue to be used to support forensic evidence in court cases.

17.2 The evaluative interpretation guidance described the process of assessment of evidential quality without use of massive datasets. Statisticians and FSPs were assisting the work. The draft would then be sent to the Judiciary for review.

18. International Forensic Standards

18.1 The governance of international forensic standards had improved. Previously the European and international standards bodies were pursuing conflicting standards, but a vote had been held, and the European group had agreed to transfer its work to the international committee, which was working on a DNA contamination standard and others. Adoption of any new international standard would be optional for UK, via the BSI (British Standards Institute). If new international standards were adopted, the corresponding UK standards (appendices to the FSR's Codes) would then be retired. The FSR awaited the potentially useful results from this international work.

18.2 The ISO (International Standards Organisation) 17025 standard for laboratories was being revised. Related information was available on the UKAS website, and at the BSI mirror committee website.

Action 11: UKAS to update FSAC on the review of the ISO 17025 standard.

18.3 ENFSI (European Network of Forensic Science Institutes) had published twelve forensic "best practice" documents on their website, but at the time of the FSAC meeting these were only available to their members. Since the work was funded by the EU, it was likely that the outputs would be made more generally available.

19. Pathology Audit / Forensic Pathology

19.1 The latest work on Forensic Pathology was summarised as follows:

- Documents on sampling at post mortems were being drafted and would shortly be issued.
- The element of the forensic pathology Code of Practice relating to toxicology was ten years old, and so was being revised.

19.2 The correct position on the legal basis for forensic examination of a foetus had been clarified.

19.3 The latest annual forensic pathology audit was on the topic of deaths caused by falls from significant height. The bids were being assessed the following week. The earlier 2012 forensic pathology audit had considered cases of deaths which were transferred from routine pathologists to forensic pathologists. 32 such cases reviewed should have been treated as suspicious deaths from the outset based on the available evidence.

19.4 In some areas the decision-making by responders, including police and paramedics, at the scene of death, could be improved. Work proceeded with the

College of Policing on training, to address this issue. Meanwhile the audit report had been submitted to Ministers, to be published with redactions by the end of the year. Press interest in it was expected.

19.5 The facts known of the case at the post mortem stage would not be the facts when the case was presented to court. Thus the post mortem needed to consider the evidence relating to all possible causes of the death.

19.6 Other points arising on forensic pathology were:

- The Hutton Report on forensic pathology had recommended combining the coronial and forensic pathology services into a national death investigation service.
- The toxicology tests in suicide cases sometimes only tested for a limited range of drugs.
- Work was under way with a forensic pathologist and a radiologist who regularly worked with forensic pathologists, on use of imaging in forensic pathology. The BAFM (British Association in Forensic Medicine) would be consulted, as imaging for forensic pathology was a contentious area.

20. FSR's Annual Report

20.1 A draft of the FSR's Annual Report had been circulated for comments, and the report would be finalised within a month. It set out three aims for forensic science, followed by the risks to UK forensic science, and the priorities. The remainder of the report was then organised under these aims, including both past and future work. This material would not be new to FSAC.

20.2 The report draft was with Home Office Crime and Policing Group, for submission to Home Office Ministers as a courtesy. This process would require two to three weeks.

20.3 Comments were also welcomed from FSAC on the forensic aims and priorities set out in the report

Action 12: Any comments on the draft FSR's annual report to be provided within the following week.

21. Home Office Forensic Science Strategy

21.1 The Home Office Forensic Science Strategy was owned by the Home Office and not the FSR. However, the FSR and AFSP had provided comments, as certain sections of the strategy addressed the FSR work. This strategy would not be circulated more widely for views, as it was scheduled for publication by the end of 2015, to meet the target given to the UK Parliament Science and Technology Committee.

22. DOJ NI Forensic strategy

22.1 The NI (Northern Ireland) DOJ (Department of Justice) has been developing a forensic strategy based around the theme of “crime scene to court”. Cost efficiencies and quality benefits were anticipated as well as better understanding of the value of forensics to the whole CJS. A separate cross-cutting pilot programme targeted at reducing the time taken prosecuting indictable cases has also been running, with early guilty pleas being targeted based in part on early forensic evidence. Various supporting work strands of the overall N.I. forensic services strategy were running in parallel. The FSR, Stan Brown, and representatives from the Netherlands, Scotland and Ireland took part along with FSNi and DOJ stakeholders in a Forensic Strategy workshop in Parliament Buildings, Stormont in November.

23. AOB

23.1 Some FSAC members, including the Skills for Health and Justice member, had not been taking part in the meetings. The professional skills role would therefore be transferred to CSFS (Chartered Society of Forensic Sciences).

Action 13: Ann Priston to consult CSFS on taking over the professional skills role at FSAC.

Action 14: The incoming CSFS president to join FSAC for a period of a year.

23.2 Northern Ireland would open its new DNA analysis laboratory, which incorporated the new anti-contaminations standards, the following week, and welcomed visitors from FSAC.

Action 15: The secretary to arrange the date for the next FSAC meeting.

[Secretary note: The next meeting date for FSAC is now 29th April 2016]

Annex A

Present:

Gill Tully	Forensic Science Regulator (FSR) (Chair)
Stan Brown	Forensic Science Northern Ireland (FSNI)
Adrian Foster	Crown Prosecution Service (CPS)
Kathryn Mashiter	Lancashire Constabulary
Mark Pearce	Association of Forensic Science Providers (AFSP)
Ann Priston	The Chartered Society of Forensic Sciences (CSFS)
Roger Robson	Forensic Access
Lorraine Turner	UK Accreditation Service (UKAS)
Judge Mark Wall	Judiciary

In attendance:

Jeff Adams	Forensic Science Regulation Unit (FSRU), HO
Simon Iveson	Forensic Science Regulation Unit (FSRU), HO
Mike Taylor	Science Secretariat, HO (Secretary)

Apologies:

Tom Nelson	Scottish Police Authority
Derek Winter	Coroners' Society of England and Wales
Mark Bishop	Crown Prosecution Service (CPS)
Julie Goulding	Criminal Cases Review Commission (CCRC)
Mark Hopkins	National Police Chiefs' Council (NPCC)
Mohammed Khamisa	Mishcon de Reya
Zoe Scott	Skills for Health and Justice