



Meeting	Forensic Services Committee
Date	30th October 2023
Location	Via MS Teams
Title of Paper	10th anniversary of Forensic Services Cold Case Review Team
Presented By	Louisa Thow, Service Delivery Manager, and Amanda Pirie, Forensic Operations Lead
Recommendation to Members	For discussion
Appendix Attached	Cold Case Review Team. The first decade 2013-2023

PURPOSE

To update members on the work of Forensic Services Cold Case Review Team created a decade ago.

1. Background

- 1.1. In the autumn of 2013, SPA Forensic Services launched a new dedicated Cold Case Review Team (CCRT). Its primary aim was to provide our customers, Police Scotland (PSOS) and the Crown Office and Procurator Fiscal Service (COPFS) with a more robust and consistent national cold case review service.
- 1.2. From the beginning the FS CCRT worked closely with the PSOS Homicide Governance Review (HGR) team who are based at the Scottish Crime Campus (SCC) and the COPFS National Homicide Team. Initially, Forensic Services, PS Homicide Governance Review and COPFS identified, discussed and prioritised work on the 48 cases.
- 1.3. Over the past 10 years Forensic Services have worked on more than 70 cold cases. These cases have spanned the whole of Scotland and extended internationally through our work on the Lockerbie Bombing enquiry. The majority of these cases are homicides which date as far back as the 1960s and up to 2019.
- 1.4. The CCRT focus has not just been homicide or laboratory-based. Forensic reviews have also included long-term missing person enquiries looking back over the work undertaken at the time of these investigations.
- 1.5. Forensic Services have a range of different Alternative Light Sources which can assist the scientist to search, detect and recovery trace and biological evidence. This, coupled with the advancement in DNA profiling techniques, provide the CCRT with very powerful tools which allows them to detect very small amounts of biological material which can be tested and provide useable DNA profiles for intelligence and evidential purposes.
- 1.6. The appendix - *Cold Case Review Team. The first decade 2013-2023* – provides members with extensive details of the work of the CCRT over the past 10 years.

2. FINANCIAL IMPLICATIONS

2.1 There are no financial implications in this report.

3. PERSONNEL IMPLICATIONS

3.1 There are no personnel implications in this report.

4. LEGAL IMPLICATIONS

4.1 There are no legal implications in this report.

5. REPUTATIONAL IMPLICATIONS

5.1 There are significant opportunities to improve the reputation of Forensic Services through the work of the Cold Case Review Team.

6. SOCIAL IMPLICATIONS

6.1 There are no social implications in this report.

7. COMMUNITY IMPACT

7.1 There are no community implications in this report.

8. EQUALITIES IMPLICATIONS

8.1 There are no equality implications in this report.

9. ENVIRONMENT IMPLICATIONS

9.1 There are no environmental implications in this report.

RECOMMENDATIONS

Members are requested to note the information contained within this report.



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Cold Case Review Team

The first decade: 2013–2023

Background

- 1.1 In the autumn of 2013, SPA Forensic Services (FS) launched a new dedicated Cold Case Review Team (CCRT).
- 1.2 The new FS CCRT comprised of a Team Manager and three Forensic Scientists, seconded from the Biology unit, who had extensive casework experience of complex and multi-disciplinary serious and major crime investigations in addition to having an understanding and knowledge of historical forensic techniques recent new developments and advances within forensic science.
- 1.3 The primary aim of the new FS CCRT was to provide our customers, Police Scotland (PSOS) and the Crown Office and Procurator Fiscal Service (COPFS).with a more robust and consistent national cold case review service.
- 1.4 The initial remit of the FS CCRT was to work in partnership with PSoS and COPFS to review all of Scotland's homicide cold cases which were separated into different categories:
 - Undetected - no suspect or accused formally identified or charged
 - Unresolved – considered detected but no formal proceedings
 - Not Guilty/Not Proven (also includes Double Jeopardy)
- 1.5 It was agreed with our partners that the new FS CCRT team would focus their efforts and resources reviewing undetected cases in the first instance. At this time there was approximately 48 undetected homicide cases in Scotland, which dated back to the 1960s.

The process

- 2.1 From the beginning the FS CCRT worked closely with the PSOS Homicide Governance Review (HGR) team who are based at the Scottish Crime Campus (SCC) and the COPFS National Homicide Team. The CCRT Management team meet on a bi-monthly basis with partners to discuss the service demand, prioritisation and status of cold cases. Typically, these meetings follow the National Homicide Governance Board meeting, feeding directly into these discussions.
- 2.2 Once cases are identified and work is agreed with our partners, the case is then allocated to one of the dedicated members of the FS CCRT team. They will then liaise and meet regularly at key stages throughout the review and investigation process with PSoS and COPFS to discuss recommendations, outcomes and developments, allowing all those involved to make informed decisions as a collaborative working group.
- 2.3 The FS CCRT are also supported by a number of other forensic disciplines and business areas within Forensic Services: Biology; DNA; Scottish DNA Database, Chemistry and Document; Criminal and Post Mortem Toxicology, Drugs, Fingerprints; Mark Enhancement, Firearms; Imaging and Multimedia Services; and Scene Examination. If required, representatives from these forensic disciplines and teams will feed into the review process and attend key meetings with the customers where appropriate.
- 2.4 Cold cases often include less frequently used tests and evidence types such as hairs, fibres, faeces and urine. Quite often hair and fibre tapings are the only forensic material to have been retained and have proved to be a critical and significant source of information in some cold cases where the original production or exhibit has been lost, not retained or destroyed. Hair and Fibre analysis is niche forensic discipline which is currently provided by only a small number of Senior Forensic and Lead Scientists, based at the FS Laboratory in Aberdeen. These niche evidence types and the co-location of their provision is not available in other UK

Forensic Science Providers and is an area in which expertise is rapidly dwindling.

- 2.5 The FS CCRT is supported by the Lead Scientist for Major Crime who has strong working relationship and links with the National Crime Agency (NCA) Major Crime Investigative Service (MCIS), external Forensic Science Providers (FSPs) and the Forensic Science Service (FSS) Archive. This ensures we have access to information on the most up-to-date technology and techniques and we can gather all historical information on a case as part of the initial review.
- 2.6 FS CCRT case reviews and recommendations closely follow the Forensic Science Regulator (FSR) guidelines making sure to include (where appropriate):
- A review of all previous findings in the context of the most up to date case circumstance information
 - Identification of new opportunities in light of current and future technologies
 - Identification of productions/retained material
 - The carrying out of additional examinations and analysis
 - Interpreting findings in light of any new research

The guidelines are available here:

[Forensic Science Regulator guidance - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/forensic-science-regulator-guidance)

- 2.7 The CCRT gather data from all retained material such as forensic casefiles (Forensic Services or other Forensic Science Providers), situational reports and briefing papers, forensic strategy minutes, list of production, scene photographs and retained forensic material (such as DNA extracts, microscopic slides, and hair and fibre tapings) and engage where appropriate with the scientists who might have originally worked on the case. It is important to take the time to be thorough at this critical stage to ensure the recommendations we put forward as part of the review are exceptionally well-considered, practical and proportionate as well as being of value and realistic in terms of expectations.

2.8 The CCRT team will document not just the recommendations of work they would consider to be beneficial but also what wouldn't and explain why, based on the case-specific information. This approach ensures transparency and demonstrates that all of the forensic opportunities and options have been full explored and considered.

The cases

- 3.1 Initially, Forensic Services, PS Homicide Governance Review and COPFS identified, discussed and prioritised work on the 48 cases that fitted the undetected description described above.
- 3.2 Over the past 10 years Forensic Services have worked on more than 70 cold cases. These cases have spanned the whole of Scotland and extended internationally through our work on the Lockerbie Bombing enquiry. The majority of these cases are homicides which date as far back as the 1960s and up to 2019.
- 3.3 The CCRT focus has not just been homicide or laboratory-based. Forensic reviews have also included long-term missing person enquiries looking back over the work undertaken at the time of these investigations. In the past 12-18 months, this has resulted in members of the CCRT having been out and about revisiting and examining historical potential crime scenes, repeating work and in some instances carrying out additional examinations with new or more specialist tests and tools, possibly not used or available at the time, to aid in the search and examination for traces of body fluids. They have also supported Police Scotland teams searching for concealed weapons and remains advising them on the best forensic strategy and approach to the to their forensic recovery, if found. The CCRT have also advised on potential exhumations.
- 3.4 A couple of long-term missing person cases the CCRT have been consulted and advised on include:

[Jenny Zheng: Police carry out forensic search of former home of woman missing since 2007 | The Scotsman](#)

[Who is Marion Hodge and why are police reinvestigating her disappearance from Lockerbie? | ITV News Border](#)
- 3.5 In addition, the Lead Forensic Scientist for Major Crime, supported by the Cold Case Review Team, Lead Scientists, and other forensic disciplines, has been involved in the review of death investigations which are of a sensitive nature and/or include complaints made by families and the public.

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3.6 These complaints often focus on the concern that these incidents have not been investigated rigorously by Police Officers or Police Scotland and have either been reported directly to the Police or to the COPFS Criminal Allegations against the Police Division (CAAPD).

[Kevin Mcleod: Detectives' review handed to Crown Office - BBC News](#)

3.7 Forensic Services were asked to assist PSOS and COPFS following exhumation of a grave to investigate allegations by a mother and other experts that a baby had not been buried in the grave but had been kept for research purposes or disposed of without her consent.

3.8 Forensic Services recovered key and significant physical evidence from items recovered from the gravesite. Forensic Services' very own fibre and hairs expert identified post mortem changes in hair found in the baby's hat recovered from the gravesite.

3.9 This investigation spanned five years, resulting in PSOS and COPFS commissioning specialist forensic work from a number of external forensic experts and services - forensic pathology, Anthropology, Taphonomy (study of organic remains), soil analysis and those who provide specialist DNA techniques such as Mitochondrial DNA (MtDNA), Massively Parallel Sequencing (MPS) and lesser known ion beam technology. Forensic Services provided continual support and counsel throughout the process when engaging with external experts.

3.10 All of the work was subsequently subject to further independent review by the National Crime Agency Specialist Forensic Advisor (NFSA).

3.11 In 2023, the investigation came to a conclusion and the Lord Advocate was satisfied that there was no evidence of any criminality and that the body of baby was buried in the grave as believed in 1975. The following media links relate to the above:

[Edinburgh mother on hunger strike to have baby's remains returned](#)

[Mum gets baby son's remains after 48-year fight - BBC News](#)

New technology

- 4.1 FS have a range of different **Alternative Light Sources (ALS)** which can assist the scientist to search, detect and recovery trace and biological evidence. This, coupled with the advancement in DNA profiling techniques, provide the CCRT with very powerful tools which allows them to detect very small amounts of biological material which can be tested and provide useable DNA profiles for intelligence and evidential purposes.
- 4.2 FS introduced **GlobalFiler** (also known as DNA 24) technology – some of the most advanced DNA technology in the world, a year or so after the Cold Case Review Team was initially set up. Not surprisingly often the CCRT first set of recommendations involved upgrading and retesting any DNA extracts remaining to try and obtain DNA results where none had been possible or to improve the quality and the amount information these samples provided in previous rounds of examinations or reviews.
- 4.3 This new DNA technology increases significantly our chances of obtaining a DNA profile from very small amounts of material and from some of the most challenging samples. FS have demonstrated that it is possible to recover and detect DNA on items which have been previously examined or failed to produce a result.
- 4.4 In tandem with this, in 2016, FS introduced **STRmix** computer software - which assists in the interpretation and statistical evaluation of DNA information. STRmix can resolve and evaluate complex mixtures of DNA up to four people. This means we can now interpret many more DNA profiles than we could before or was not possible previously. Further explanation of [STRmix is available here](#).
- 4.5 FS also now offers **YSTR analysis** as standard. Previously this work had to be outsourced to external Forensic Service Providers. YSTR DNA profiling targets male-specific DNA which is inherited from father to son. This can be useful when there are small amounts of male DNA in a sample which has a high background of female DNA.

- 4.6 YSTR DNA profiling can also be a useful tool in major investigations when attempting to identify an offender through familial relationships and intelligence DNA databases.
- 4.7 While Forensic Services does not have the capability and software to offer **Familial DNA Searching** of DNA databases as yet, the Cold Case Review have benefited from the experience of the current CCRT Team manager, who worked in the Forensic Science Service's (FSS) Forensic Intelligence Bureau from its inception in 2003 and was part of the team that introduced this new powerful investigative technique into major crime investigation. FS currently require the initial support of external FSP's if PSOS wish to progress any Familial DNA searching using DNA databases in our Cold Cases. However, FS are able to support the second phase of this work with DNA 24 and YSTR testing of samples identified as potential family relatives of the offender.
- 4.8 FS are currently exploring new advancements in forensic science which could potentially aid the CCRT further in cold cases. These techniques and tools include Mitochondrial DNA testing and Massive Parallel Sequencing (MPS).

The successes

- 5.1 Success is not just measured with a conviction, although these cases are the ones that tend to grab the headlines and the public's attention. FS have assisted PSOS and the COPFS in several cases to reach a position where they are satisfied that all avenues have been explored and exhausted and that the most up-to-date scientific techniques available at the time have been applied providing reassurance to the family of the victims that we have given and done everything we possibly can.
- 5.2 Forensic Services have been associated with the following successful convictions, acquittals, or case closures in cold cases since 2013:

[Elaine Doyle murder: John Docherty guilty of 1986 killing - BBC News](#)

[Mary McLaughlin murder: Killer jailed after DNA solves 35-year mystery - BBC News](#)

[Man jailed for 1997 murder of Glasgow woman Tracey Wylde - BBC News](#)

[Philip Morrison cleared of Derek Sheerin murder after DNA query - BBC News](#)

[Brenda Page: Ex-husband guilty of murdering 'brilliant' scientist in 1978 - BBC News](#)

[Renee MacRae: Man found guilty of killing lover and son in 1976 - BBC News](#)

[Louise Tiffney: Judges explain bid to try son for mother's murder - BBC News](#)

- 5.3 Quite often the news headlines associated with these cases have been hard-hitting but are always complimentary of the hard work and efforts of the Forensic Services staff and acknowledge the partnership working between the Police, COPFS and Forensic Services.

Key learning points

- 6.1 Over the past decade the FS Cold Case Review Team has been able to refine their national product significantly. We have developed a strong working relationship and engagement with our key stakeholders within PSOS and COPFS.
- 6.2 The CCRT have access to new tools, with more in the pipeline being explored by the new Forensic Services' Research Development & Innovation (RDI) team which are likely to generate even more information to police investigations, both intelligence and evidential, which could potentially lead to the detection and resolution of more of PSOS undetected or unresolved major crime investigations and not just cold cases.
- 6.3 FS have developed methods to obtain and interpret DNA profiles from historical and challenging samples using the most advanced DNA technology and software currently available.
- 6.4 FS now have extensive experience of preparing cold case work for court - through working closely with the COPFS - and have experience of giving evidence in court in these types of complex cases.
- 6.5 FS have demonstrated the value in revisiting historical scenes of potential crime scenes providing advice and guidance when new information comes to light.

The present

- 7.1 The FS Cold Case Review Team is currently comprised of three senior forensic scientists within biology – supported by the Lead Forensic Scientist for Major Crime (now known as a Forensic Operations Lead (FOL), who holds the Forensic Services’ cold case portfolio but who also on occasion carries out cold case reviews on behalf of the team. The work of the cold case team is currently managed by a Team Manager (now known as a Service Delivery Manager (SDM).
- 7.2 The FS continue to maintain a close working partnership with the PSOS Homicide Governance Review Team and the National Homicide Team within COPFS and continue to have regular meetings.
- 7.3 FS now deliver forensic inputs to the new PSOS Review Officers Training Course developed by HGR and supported by SCD Detective Training at the Scottish Police College (SPC).
- 7.4 At this moment, the CCRT have 15 active cases currently allocated within the team and two of which are being prepared for presentation at court. We have also reviewed a further six further cases which are still waiting to be resourced by the PSOS Homicide Governance Review Team.
- 7.5 The team is ten years in the making and FS now hold a decade (and much more) of operational learning and development as well as specialist knowledge working on and progressing cold case work successfully in Scotland.

The future

- 8.1 There are still opportunities for FS to develop and build on the work of the CCRT into other types of investigations.
- 8.2 There have been instances where external police forces and agencies, such as the Metropolitan Police (Operation KENOVA and the Specialist Investigation Forensic Team (SIFT), Forensic Science Regulator (FSR), the Criminal Case Review Commission (England & Wales) have reached out to Forensic Services for support and to independently review 'live' and non-recent investigations. There are real opportunities to develop this work further providing specialist support to other forces and agencies in the UK and further afield in a similar manner to external Forensic Service Providers.
- 8.3 In collaboration PSOS and COPFS, the CCRT could expand the scope of their services and capacity to similarly support the review of other undetected or unresolved serious and major crime casework such as sexual offences. Tackling Violence against Women and Girls (VAWG) is an area which is being targeted in recent government campaigns to make communities safer and where there is a great deal of public and media interest. FS have the capability and experience to be very successful here – the introduction of Familial DNA Searching to the range of services within FS would be of immense benefit to assisting PSOS to identifying potential offenders in serious sexual offences.
- 8.4 For example, as a result of a forensic case review of the sexual assault of a young female in 2015, further DNA 24 testing resulted in a forensic link between established between this incident and a further two sexual assaults of females in the same area in 2012 and 2015.
- 8.5 The PSOS enquiry team commissioned a Familial DNA search of the unidentified male DNA profile linking these three incidents using the National DNA Database with support of an external FSP and the NCA Major Crime Investigative Support (MCIS) team.

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8.6 This work resulted in the identification of a number of individuals whose DNA was further tested with GlobalFiler and YSTR by Forensic Services which resulted in them being eliminated as a potential relative of the offender – police enquiries are still continuing. Some links are included below including the media campaign:

[Edinburgh manhunt for sexual predator sparks £5k Crimestoppers reward for arrest - Edinburgh Live](#)

[Edinburgh manhunt as detectives create a full DNA profile of sex attacker | Edinburgh News \(scotsman.com\)](#)

Strategic benefits

9.1 The benefits of developing this service further and highlighting the work of the Cold Case Review Team are very clear and the service ethos and direction already aligns closely with the refreshed Forensic Strategy:

- Supporting our people through a positive working environment, enabling them to provide **excellent forensic services**
- Forensic Services is sustainable, adaptable and prepared for future challenges. Use **innovative approaches** to build our capability and capacity to provide **high quality forensic services**.
- Drive forward the **implementation of new technologies** to enable forensic services for the future.
- Forensic Services delivers high quality, ethical services: and leads in order to **advance forensic science. Influence and collaborate** to enable the advancement of forensic capabilities. Promote **exceptional customer service**.
- Forensic Services works **collaboratively with partners** to service the needs of the public and Criminal Justice in Scotland.
- Collaborate and work effectively with criminal justice partners to **develop strategies to maximise the value of forensic science**.
- Adopt a whole justice sector approach to design **new future-focused services** with partners. Demonstrate and promote the value that forensic services provide to our customers, partners and the public.

9.2 The Cold Case Review Team is a blueprint for the FS Forensic Strategy and the cold case casework is a great example of successfully achieving and demonstrating the Forensic Services strategic outcomes.