



NPIA

National Policing
Improvement Agency

POLICE SCIENCE
AND FORENSICS

Forensic Submissions

Good Practice Guide



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Forensic Submissions Good Practice Guide

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Foreword

In the current financial climate, forces are seeing their forensic submissions budgets coming under scrutiny with many forces experiencing cuts, with the anticipation of more on the horizon.

Forensics21 was commissioned through my Performance & Standards group to look at the area of forensic submissions, with the initial analysis of selected force data identifying a number of consistent trends identified through the Forensic Submissions National Trend Report. The methodology used within this report considers the impact on detections from forensic submissions rather than concentrating entirely on Forensic Service Provider examination success rates in order to decide whether to submit an item for examination.

Forensics21 were further tasked to facilitate the production of this guidance drawing on the experiences of key personnel from each of the ACPO regions of England and Wales. These forces were consulted for input into this guide in order to create submission guidance that documents a refined submission process that offers best value for money.

This document is therefore a practical guide to the Forensic Submissions process that puts together information that should assist forces to make informed cost effective decisions. It is intended to be a dynamic document which will continue to

evolve as new advances in science and procedures are implemented.

Finally, I would like to thank all those who have contributed to this guide. Without this help a guide that has the potential to improve cost effectiveness nationally just would not have been produced.



DCC John Fletcher

Chair – ACPO Forensics Performance & Standards

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Section 01

Introduction

- 1.1 Overview
- 1.2 Objectives
- 1.3 Methodology
- 1.4 The Role of Forensic Submissions
- 1.5 POLKA

1.1 Overview

The recent trend report 'Combined Submission Data Review' highlights that due to recent changes within the financial climate, police forces are experiencing significant cuts and budgetary constraints are being imposed. Forces are seeing their forensic submissions budgets coming under scrutiny with many forces experiencing year in cuts, with the anticipation of more on the horizon.

Forensics21 were commissioned through the 'Process Management Improvement' project to analyse selected force data to examine the emerging trends that can assist in managing the submission process and to demonstrate the impact on policing of budget cuts around submissions.

Due to the success of the report Forensics21 were further tasked to examine how these trends can be implemented across submissions departments. This work highlighted the need for a guidance manual and a training programme for submissions staff.

1.2 Objectives

This manual provides guidance on forensic submissions based on identified good practice and is set out to enable each force to continue to ensure that best value is obtained from the available forensic resources. It is intended as a reference for police forces. Substantial benefits can be made where good practice guidance is followed.

Whilst this document cannot be prescriptive, any diversion from these proven business processes could affect a force's ability to improve its performance within the forensic submissions arena.

1.3 Methodology

This good practice guidance document has been developed drawing on the experiences of personnel representing from each of the ACPO regions of England and Wales in forensic submissions processes. These forces were consulted for input to this guide in order to create submission guidance that documents a refined submission process.

1.4 The Role of Forensic Submissions

The role of forensic submissions is to provide a centralised submissions service for the force to ensure the requirements of the Criminal Justice System are met and that best value is obtained from the available forensic resources by using submissions to detect crime more effectively.

Forensic science is the application of science to the law, or to the scientific investigation of crime. It can be used to provide evidence to support or refute an allegation, a version of events, or a suspect's involvement in an offence.

This work will help to professionalise forensic submissions by way of providing an efficient and effective process for authorising forensic submissions and providing a structured learning programme.

1.5 POLKA

POLKA, the Police OnLine Knowledge Area is an online platform created to facilitate efficient communications and information sharing across the Police Service and partner agencies.

Founded on social media and Web 2.0 principles, it offers a new, efficient way of working that simplifies the sharing of knowledge and practice. POLKA brings together users, from across all UK police forces, to form communities of practice to share, discuss and collaborate on a variety of information or documents through a range of modern web technologies such as blogs, discussion forums and document libraries.

If you don't already have a login ID and password, visit the POLKA home page (<https://polka.pnn.police.uk>) for instructions on how to sign up.

Content in POLKA is organised into communities – each dedicated to a specific area of policing, such as Forensics, Cost Effectiveness, Police Gazette or Anti-Social Behaviour.

Forensic related communities include:

- Forensics
- Forensic Submissions
- Forensic Submissions - Managers
- National DNA Database (NDNAD)
- Forensics 21 Protection of Freedoms Act
- National Forensic Procurement
- Forensics21 National Footwear Database
- ACPO Drugs
- eForensics
- Criminal Use of Firearms
- Forensics21 Quality Standards
- NPJA Knowledge Bank

For further detailed information refer to:
POLKA User Guide

Section 2

Basics of Forensic Science

- 2.1 DNA
- 2.2 Fire Investigation
- 2.3 Footwear
- 2.4 Firearms
- 2.5 Drugs
- 2.6 Noxious Substances
- 2.7 Questioned Documents
- 2.8 Toxicology
- 2.9 Trace Evidence
- 2.10 Blood Pattern Analysis
- 2.11 Case Review
- 2.12 Entomology
- 2.13 E-Forensics

2.1 DNA

DNA (Deoxyribonucleic acid) is a molecule found in the cells of all people, animals, plants, and other organic matter. The cells are the building blocks of any living organism, of which the human body has countless millions.

Cells are contained within many different types of tissue e.g. skin, muscle, blood etc., and inside the majority of cells is a nucleus that contains the 'vehicles' of inheritance – the chromosomes.

In human beings, for all forensic purposes, every cell contains DNA. Each DNA molecule has a double-helix structure, which carries the genetic code or 'building instructions' for an individual human body.

The chemical structure of DNA embodies a genetic code, made up of only four repeating units – the repeats interlock like the teeth of a zip fastener.

Variations in the DNA code are responsible for physical differences between individuals including sex, height, hair and eye colour etc.

The DNA pattern for each person, save for genuinely identical twins, is believed to be unique. Half of a person's DNA is inherited from their mother and half from their father. Children will inherit different combinations of DNA from the same parents and therefore will have different DNA from each other. However, children within one family are more likely to have similar DNA than unrelated individuals.

It is this uniqueness and the ability to create a digital profile from it that makes the use of DNA so important in matching people to places and offenders to scenes. Scientists have long recognised the fact that if they could demonstrate the differences in the chemical sequence of the DNA molecule this would give access to a powerful way of identifying individuals.

2.1.1 DNA Sampling Kits

There are three different types of DNA sampling kit available:

- PACE DNA Sampling Kit
- Elimination DNA Sampling Kit
- Police Elimination Database Sampling Kit

It may be necessary to consider taking a DNA sample from potential vulnerable victims. The Vulnerable Persons DNA Database (VPDD) has been created to store DNA profiles obtained from such individuals.

Examples could include a person at risk of:

- Honour Based Violence (HBV)
- Sex workers and those at risk of sexual exploitation
- The mentally ill

These DNA samples should be taken using Elimination DNA Sampling kits however, the elimination card should be discarded and replaced with a vulnerable volunteer DNA retention form in order to provide consent to retain the DNA profile.

Honour based violence (HBV) is a crime or incident which has, or may have, been committed to protect or defend the honour of the family and/or community.

There are some circumstances where it may be necessary to get a DNA profile added to the Missing Persons DNA Database. The database which is used for this is called Hermes and therefore a Hermes reference number will be needed this is generated by the database. If a PACE DNA sample is already held for the missing person then a request can be made to transfer this profile to the Missing Persons DNA Database.

Schedule 8 of the Terrorism Act 2000, as amended by section 89 of the Anti-Terrorism, Crime and Security Act 2001 allows for the taking of DNA samples during Schedule 7 Terrorism Act examinations. These DNA samples should be taken using PACE DNA Sampling kits. This is sometimes referred to as Schedule 7 TACT 2000 DNA sample.

2.1.1.1 PACE DNA Sampling Kit

This is the DNA sampling kit that MUST be used when obtaining a DNA sample from a person detained at a police station who has been arrested, charged or reported for a recordable offence. This kit MUST also be used when obtaining a DNA sample from a person reported for summons or convicted at court and no previous DNA sample has been taken.

The resulting DNA profile is submitted for permanent inclusion on the National DNA Database (NDNAD).

All PACE DNA Sampling Kits have a unique barcode starting with 96, 97, 98, 99 or 3.

On May 1st 2012 The Protection of Freedoms Act 2012 received Royal Assent at Parliament. There are sections within this legislation that, when commenced, will make amendments to PACE in relation to the retention of DNA samples and profiles held on the NDNAD.

In essence the spirit of the Act allows for those persons who have had their DNA taken following an arrest for a recordable offence and never convicted, to have their profiles removed from the database following an initial speculative search of unidentified crime scene stains. If the arrest was in relation to a serious offence (referred to as a qualifying offence in the PACE amendments), then there are instances whereby the profile may be retained for up to five years.

Persons under the age of 18 convicted for a single minor offence (including Cautions, Reprimands and Warnings) will have their DNA profile retained for between five and ten years, unless they received a custodial sentence in excess of five years, in which case the DNA profile can be legally retained indefinitely.

In other cases where a conviction relates to an adult or to someone under 18 who has been convicted of a serious offence and/or has more than one conviction for a minor offence, then the DNA profiles can be legally retained indefinitely.

The actual molecular material collected at custody (DNA Sample) will be destroyed within six months of it being taken, unless an application for further retention is made through a Magistrates' Court. These applications are subject to strict criteria being met.

2.1.1.2 Elimination DNA Sampling Kit

This is the DNA sampling kit that **MUST** be used when obtaining a DNA sample from a person whose DNA may need to be eliminated from an investigation. For example a victim of an assault who has donated their clothing for forensic examination.

The resulting DNA profile is only compared to DNA profiles obtained from that specific investigation and is **NOT** routinely loaded to the National DNA Database. Elimination DNA samples are destroyed at the end of an investigation.

All Elimination DNA Sampling Kits have a unique barcode starting with 5.

2.1.1.3 Police Elimination Database DNA Sampling Kit

This is the DNA sampling kit that **MUST** be used when obtaining a DNA sample from a new police officer or a new member of police staff. The Police Elimination Database (PED) helps to minimise the consequences of innocent contamination of an exhibit or a crime scene by police personnel, and to protect the integrity of investigations.

The resulting DNA profile is submitted for inclusion to the PED, which is a database managed by the National DNA Database Delivery Unit (NDU) and is completely separate from the National DNA Database.

Police personnel profiles are immediately removed from the PED when a person leaves the employment of the Police Service.

All PED DNA Sampling Kits have a unique barcode starting with 7.

2.1.1.4 National DNA Database

The National DNA Database (NDNAD) was established in 1995, under the authority of the Police and Criminal Evidence Act 1984 (PACE 1984) as amended by the Criminal Justice and Police Act 1994. It is a valuable tool for forces to proactively use forensic science in the detection of crime.

The original DNA profiling system, SGM, was introduced in 1995 and involved the analysis of six areas of DNA and a sex test in order to produce a DNA 'profile'. The match probability for this analysis was in the region of 1 in 50 million. It was soon recognised that as the size of the database increased it was likely that adventitious matches between profiles may occur. This system has since been replaced by SGM+ that analyses an additional four areas of DNA, thus also increasing the match probabilities in the order of 1 in 1 billion.

Through the production of Match Reports the NDNAD provides forces with information that can assist in the detection of a crime. The database contains profiles both of individuals, and those recovered from scenes of crime. By comparing the two sets of profiles it is possible to identify 'matches' and it is those matches that are reported to the relevant police force. By using probabilities it is possible to assess the value of evidence contained within match reports.

2.1.2 Crime Stain DNA

Evidence recovered from crime scenes is often used reactively; there is a far greater scope for the use of these exhibits to allow forces to proactively utilise forensic science.

Profiles resulting from items recovered from the scene of a crime that have been submitted to a Forensic Service Provider (FSP) for DNA examination can then be searched using the National DNA Database (NDNAD) to obtain matches against the nominal details, or profiles from other crimes held on that database.

The need for procedures regarding the subsequent submission of these retrieved exhibits is to ensure that best value evidence is submitted to the FSP for processing and inclusion on the NDNAD.

By meeting the required criteria for submission, each submission made is expected to result in a profile being obtained. Subsequently this will be loaded on to the NDNAD and ideally a 'match' produced. The production of useable profiles will have a knock-on effect on the detection and reduction of Volume Crime.

The use of DNA profiles obtained from items recovered from a crime scene although not unique, is highly discriminating. The list below highlights the potential success rates of obtaining a DNA profile from common evidence types recovered from crime scenes.

| | |
|---------------|------|
| Blood | 92 % |
| Chewing Gum | 90 % |
| Cigarette End | 72 % |
| Food | 54 % |
| Saliva | 57 % |
| Handled Items | 20 % |
| Clothing | 35 % |

When a sample is profiled at the laboratory there are a number of outcomes that can be reported. These are: Full Profile; Partial Profile; No Profile Obtained and Mixed Profile. If a Full Profile is obtained this means that all areas of DNA analysed are confirmed within the profile and that 20 alleles are present. Generally all Full Profiles generated are loaded to NDNAD, in certain circumstances, for example if a suspect is known to be male and a female profile is generated, a Full Profile would be deemed as unsuitable for permanent inclusion on the database and would therefore not be loaded. If, when the DNA is analysed all of the components are not present in the profile then it is described as being a Partial Profile. These profiles can still be loaded to NDNAD if sufficient alleles are present. Alternatively a one-off speculative search of the database can be carried out without permanently including it on the database. When a profile isn't obtained the reason is most likely that there wasn't

sufficient DNA present in the original sample in order to generate a profile. As the name suggests Mixed Profiles contain DNA from more than one individual. In some circumstances it is possible to separate the profiles and attribute the components present to a specific individual, in which case the profile can be loaded to NDNAD should sufficient alleles be present. It is also possible a one-off speculative search of the database can be carried out with a mixed profile without permanently including it on the database if sufficient alleles are present.

2.1.2.1 STR Profiling

The most common technique of DNA analysis is known as short tandem repeats (STR) profiling. This technique looks at specific short lengths of the DNA that are repeated, end-to-end, within the DNA molecule and makes millions of copies of them. Different people will have different numbers of repeats and hence different lengths of this repeated DNA. The STR profiling technique examines the lengths of the repeat units and converts the lengths into digital outputs, known as the DNA profile. The current method of STR profiling uses Second Generation Multiplex Plus (SGM+) and examines ten areas of DNA plus a sex indicator.

2.1.3 Other DNA

2.1.3.1 Low Template DNA

Low Template DNA (LTDNA) analysis techniques are an expansion on the SGM+ technique. They are used when the amount of DNA present is low, below 200 picogram (pg), and many more copies of the DNA have to be made in order to obtain the DNA profile using both 28 and 34 PCR cycles. This allows profiles to be obtained from traces that are too small to be seen with the naked eye, or are highly degraded. However, because of the sensitivity of LTDNA analysis it is important to consider the following issues:

- The nature of the original starting material is unknown
- The time at which the DNA was transferred cannot be inferred
- The opportunity for secondary transfer is increased in comparison to standard DNA profiling

In view of the complexities of using LTDNA analysis each submission needs to be considered on a case-by-case basis.

2.1.3.2 Mitochondrial DNA

Mitochondrial DNA is not found in the nucleus of cells, but in the mitochondria. It is associated with the energy production functions of the cell. Mitochondrial DNA is inherited solely down the maternal line.

Mitochondrial DNA analysis is very different from STR analysis and the results are far less powerful for distinguishing between individuals (1 in 100 being a typical match probability). However it can still be used to eliminate a suspect conclusively.

The main advantage of mitochondrial DNA is that it is less sensitive to factors such as age and environmental conditions. Therefore, it is particularly useful for analysing decomposed tissue and material from fires. It is also possible to use this technique to analyse samples such as faeces, bone and

hair shafts, which cannot be analysed using STR methods.

Currently, the analysis of mitochondrial DNA is very time consuming and expensive. This, together with its relatively limited evidential value, will restrict its use in most routine investigations.

Mitochondrial DNA profiles are not comparable with STR profiles and therefore cannot be loaded onto the NDNAD.

2.1.3.3 Y-STR Profiling

The Y-chromosome is present only in men. Analysis of the short tandem repeats (STRs) on the Y-chromosome can demonstrate relationships between male members in a family. This is because a man shares the same or similar Y-chromosome profile with his father, his grandfather and brothers.

As the Y-chromosome is only inherited through the paternal line, the number of Y-STR markers are fewer than would be available using SGM+. Therefore, Y-STR profiles are less discriminating. They are also incompatible with the STR profiles loaded to the NDNAD.

Y-STRs can be particularly useful in the investigation of sexual assault cases. Since Y-chromosome sequences do not occur in females, male DNA can be identified from samples where there may be mixed male and female cells, even if there is only a very small amount of male DNA.

This can be extremely useful in sexual assault cases where:

- The amount of semen on vaginal swabs is low or absent
- Saliva has been deposited through kissing and licking.
- Skin contact has taken place e.g. during strangulation or digital penetration.

Note: Analysis of Y-STRs can also be used in familial searches by forensically investigating the persons identified by the matrix as most likely matches.

2.1.3.4 Y-SNP Profiling

Y-chromosome single nucleotide polymorphisms (Y-SNPs) are markers on the Y-chromosome that are inherited through the paternal line. The Y-SNPs change very little between generations and it is possible to use the analysis of Y-SNPs to infer an individual's possible ethnicity. This technique can be particularly useful in providing information about unidentified bodies.

Y-SNPs can be used in conjunction with other DNA profiling techniques, such as analysis using SGM+ and mitochondrial DNA, and the Red Hair Test.

2.1.3.5 Paternity

It is possible to use DNA profiling to determine the parentage of a child by comparing the DNA profile of the child with the DNA profiles of the mother and the alleged father.

Using paternity DNA profiling, it is possible in some cases to exclude a claim of fatherhood with absolute certainty. In the event that paternity cannot be conclusively excluded, a statistical assessment of the probability of paternity will be produced.

Before deciding on paternity testing you should ensure the request is in the interests of the investigation and not just curiosity as any request may be subject to a subsequent ethics audit.

2.1.3.6 A-SNP Profiling

Autosomal single nucleotide polymorphisms (A-SNPs) DNA analysis is designed to target very small lengths of DNA so that even degraded DNA that has broken into small fragments can be analysed.

This technique is useful for analysing degraded material such as old bones, decomposing remains or body fluids that may have been exposed to extremes of temperature and humidity. As a result, it can be helpful when identifying the remains of missing persons and victims of mass disasters.

A-SNPs analysis examines different areas of DNA to those analysed by SGM+ and the results are therefore incompatible with the profiles on the NDNAD. A-SNP analysis should only be used after attempts have been made to obtain a DNA profile using SGM+, LTDNA and mitochondrial DNA analysis techniques.

The use of A-SNPs should be considered where a partial profile has been obtained through SGM+ or LTDNA and where degradation of the DNA is suspected. The use of A-SNPs for the analysis of mixed stains is complex and very limited.

2.2 Fire Investigation

Evaluating scenes where fire or explosions have occurred is difficult. Often the scene of the crime and the evidence are severely damaged, if not destroyed. This can happen not only due to the effects of the fire itself but by subsequent efforts of the firefighters to extinguish the blaze. A successful arson investigation will overcome these issues to answer the following:

- Where was the fire's point of origin?
- What was the cause of the fire?

Prior to the commencement of the investigation of a fire scene it is often not clear if the fire was deliberately started and if so that arson has been committed. Therefore the investigation of all fire scenes should be treated as a crime scene until it can be established that this is not the case.

A good working relationship between the Force and Fire Investigation Service is essential as these will often be joint investigations.

Items of physical evidence may be recovered that link the scene, and/or the events that occurred during the setting of the fire to a suspect. These items would be treated the same as those recovered from any other crime scene.

Fire investigation and comparison involves the examination of items/debris to establish presence of accelerant, combustible materials and/or potential cause of ignition and interpretation of fire damage.

2.3 Footwear

The comparison of footwear marks can be a useful intelligence tool, which when used to its full potential has the ability to provide evidence which can on occasion be as strong as conclusive.

Footwear has the potential for unique evidence i.e. the ability to link an item of footwear with an impression recovered from the scene of a crime. By utilising footwear marks recovered from the scene of a crime, it is possible to examine images of a crime scene footwear mark to establish the national coding of the footwear responsible for making the mark and comment on the potential evidential value. All this information is then used to populate and update relevant databases, including the National Footwear Reference Collection (NFRC) and the National Footwear Database (NFD). This then enables an assessment of any links between these marks to be made in order to determine the potential for a connection to be established between footwear or impressions and recovered crime scene marks, based on pattern, type, size, and unique damage.

By coding and screening footwear marks it is anticipated that ultimately a footwear comparison can take place to compare footwear marks recovered at crime scenes with other crime scene footwear marks and/or footwear attributed to suspects to confirm any potential links and provision of subsequent evidence.

2.4 Firearms

Under English law, a firearm, as defined in Section 57 of the Firearms Act 1968 (as currently amended), is 'a lethal barrelled weapon of any description from which any shot, bullet or other missile can be discharged.' Also included within this are all prohibited weapons, any components of these

weapons, and any accessory adapted or designed to reduce the sound or decrease the flash produced by such a weapon when fired.

Firearms and ammunition classification and comparison includes the examination of firearms, firearm components and ammunition and classification of those items under UK (and if required European) Firearms legislation. It may also be necessary to examine firearms, firearm components and ammunition to establish identification, origin, links, interpretation, assessment of range and direction, viability and reconstruction/modification of submitted items.

If discharged ammunition is recovered it may be necessary to examine and compare discharged ammunition from a scene and compare with a single reference firearm/weapon and classify weapon/ammunition under UK and European Firearms legislation.

2.5 Drugs

When suspected drugs are recovered during the course of an investigation it may be necessary for drugs identification to be undertaken to quantify or count submitted substances and identify any drugs and/or associated additives. If a significant quantity of drugs is recovered consideration can also be given to determine the purity of any drugs present. Drugs paraphernalia may also require examination in order to identify any traces for the presence of drugs and/or associated additives. Confirmation of the legal status of any submission can also be made at this stage examining the submitted items for the presence of any substances controlled under the Misuse of Drugs Act 1971.

Another area associated with drugs is the cultivation of cannabis. If a cannabis growing scene is under investigation the actual or potential yield of the cannabis plants can be established. Other drugs related scenes may involve the manufacturing of illicit substances and it may be necessary to establish the manufacture capability of either the submitted drugs or chemical ingredients.

Drugs chemical profiling and comparison can be carried out if appropriate with further analysis required to facilitate a chemical comparison of submitted substances and interpretation of the degree of relationship between samples.

Physical and/or mechanical comparison of drugs and/or drugs packaging can be utilised to physically and/or mechanically compare drugs and/or drugs packaging material and any associated items, to determine the degree of association or disassociation and interpret the findings within the context of the case.

2.6 Noxious Substances

Incapacitant spray canister/container examination and comparison involves examining the items for the presence of an incapacitant residue e.g. CS Gas (o-chlorobenzylidene malononitrile) PAVA (pelargonic acid vanillylamide), on or within items and comparison with any reference sample, and classification under UK and European Firearms legislation.

Depending on the circumstances of the case it may be necessary to examine items for presence of noxious substance(s) on or within items and compare with any reference sample(s).

2.7 Questioned Documents

Handwriting examination and comparison can be used to visually examine handwriting and signatures on documents to establish links and/or authorship and authenticity. It is also possible to examine, enhance/develop, analyse and make comparisons of handwriting, inks, alterations, counterfeit documents and linking of documents to associated printing and office equipment.

Typewritten or printed documents may be submitted for comparison with typewriters or printers, including inkjet, laser printers, faxes or other documents.

Photocopied documents can be utilised for comparison with photocopiers or other photocopied documents in order to determine the source.

2.8 Toxicology

Toxicology can be utilised to provide an analytical service to determine the proportion of alcohol present in blood or urine samples. In complex cases this can be enhanced to provide calculations and assessments relating to drinking patterns and changes in blood, breath and/or urine alcohol levels over time.

It is also possible to provide an analytical service to analyse a blood or urine sample for the presence of common drugs of abuse. This also incorporates 'standard' drug-driving cases. If necessary the effects of any identified substances on behaviour can also be interpreted.

Common drugs of abuse:

- Amphetamine
- Methamphetamine
- MDMA, MDA
- Cocaine and metabolites
- Cannabinoids as THC-11-oic acid (and/or THC in blood when applicable)
- Opiates (to include morphine, codeine, dihydrocodeine)
- Opioids (to include methadone, buprenorphine)
- Common benzodiazepines (to include diazepam, temazepam)
- Ketamine
- Common Cathinones (to include mephedrone, methylone, naphyrone, butylone, MDPV)
- Common Piperazines (to include BZP, TFMPP, m-CPP)
- **Driving cases only:** Other abused Benzodiazepines (alprazolam, phenazepam)

If other drugs not considered to be common drugs of abuse are believed to have been taken an analytical service can be provided to analyse blood and urine samples for the presence of drugs other than the common drugs of abuse listed above. This includes 'non-standard' drug-driving cases. Other drugs considered include prescription drugs as well as those associated with Drug Facilitated Sexual Assault (DFSA).

Named prescription drugs

- Anti-depressants (to include amitriptyline, nortriptyline, dothiepin/dosulepin, fluoxetine, paroxetine, venlafaxine, fluvoxamine, citalopram, sertraline, trazodone, mirtazepine)
- 'Z' Drugs (zopiclone, zolpidem, zaleplon)
- Anti-psychotics (to include quetiapine, olanzapine, chlorpromazine, clozapine)
- Analgesics (to include paracetamol, aspirin, tramadol, oxycodone, dextropropoxyphene, fentanyl)
- Benzodiazepines (to include diazepam, desmethyldiazepam, temazepam, oxazepam, chlordiazepoxide and low dose benzodiazepines including alprazolam, flunitrazepam, lorazepam, midazolam, clonazepam, nitrazepam,)

and if required

- Anti-convulsants (to include phenytoin, carbamazepine, lamotrigine, valproate)
- Anti-histamines (to include diphenhydramine, chlorphenamine, hydroxyzine, promethazine)
- Beta-blockers (to include propranolol, atenolol)

Drug Facilitated Sexual Assault

- GHB/GBL
- Barbiturates
- 'Z' Drugs (zopiclone, zolpidem, zaleplon)
- Anti-depressants (to include amitriptyline, nortriptyline, dothiepin/dosulepin, fluoxetine, paroxetine, venlafaxine, fluvoxamine, citalopram, sertraline, trazodone, mirtazepine)
- Anti-histamines (to include diphenhydramine, chlorphenamine, hydroxyzine, promethazine)
- Anti-psychotics (to include quetiapine, olanzapine, chlorpromazine, clozapine)

- Analgesics with potentially sedative effects (to include tramadol, oxycodone, dextropropoxyphene, fentanyl)
- Erectile dysfunction drugs (to include sildenafil, tadalafil, vardenafil)

Other body samples other than blood and urine (e.g. hair, stomach contents, control sample) can be analysed to identify the presence and use (short term and long term) of drugs, alcohol and other substances (non-noxious) and interpretation of the significance of any findings and comparison to any submitted reference samples be made.

2.9 Trace Evidence

Trace evidence includes:

- Contact traces glass examination and comparison
- Instrument (tool) marks examination and comparison
- Fibre examination and comparison
- Damage interpretation and comparison
- Hair examination and comparison
- Enhancement and recovery of crime scene marks in the laboratory
- Firearms discharge residue examination and comparison.

The value of glass evidence is dependent upon the case and the circumstances. The physical or chemical aspects of the actual glass are not as important as the location of the glass on the suspect and the circumstances of the case. Glass may be seized as evidence from a wide range of offences including burglary, theft from, theft of a motor vehicle and damage.

Contact traces glass examination and comparison entails searching, recovery and analysis of glass samples to identify characteristics, and conduct intelligence and direct evidential comparison. Contact traces other than glass may be present and examination and comparison in these cases will involve a similar process to search, recover

and analyse contact trace samples, other than glass (particulate material or staining), to identify characteristics, and conduct intelligence and direct evidential comparison.

Contact traces other than glass deals with the examination/analysis of particulates and substances such as:

- Paint
- Plastics
- Wood
- Lubricants
- Dyes (not including hair dyes)
- Security markers
- Safe Ballast
- Building materials/debris
- Soil
- Metals

In cases where tool marks have been recovered from a scene instrument marks examination and comparison may be carried out. This requires an FSP to examine, analyse and determine physical characteristics of instrument impressions and/or photographs, and conduct intelligence and direct evidential comparisons against reference items.

The comparison of fibres is not unique, the number, type and colour of strands under consideration however can provide a strong or extremely strong link between clothing and the scene.

Fibre evidence primarily relates to thefts of motor vehicles, linking individuals to a particular seat in the vehicle or the point of entry at a burglary. During crimes of robbery and assaults fibres may be transferred by contact between the victim and assailant.

Fibre examination and comparison involves searching for, recovery, examination and identification of characteristics of fibres, and the subsequent conducting of intelligence and evidential comparisons.

Damage interpretation and comparison requires the examination of items to interpret appearance,

condition, damage/wear and cause of any damage/wear. It may then be necessary to compare items to reference items or correlate damage to range of items.

Pulled hair samples, i.e. those containing root material, provide a good source of DNA. However the roots of shed or fallen hairs are dead and whilst these are unsuitable for STR profiling, they may provide a rich source of mitochondrial DNA.

Hair examination and comparison is utilised to recover and examine hairs from items of clothing or objects to distinguish human hairs from animal hairs, identify species of animal, and carry out examinations and comparisons with reference hair sample and comment on their potential for DNA analysis. It may be necessary to conduct evidential comparison of recovered human and/or animal hairs to establish a link between person(s) and/or scenes and/or items. Appropriate analytical techniques can be utilised to identify and compare hair dyes.

In some circumstances it may be necessary for laboratory-based enhancement, development, recording and recovery of visible and/or latent marks (e.g. fingerprints, footprints, footwear, glove marks, tyre marks and blood staining) to be carried out.

Firearms discharge residue examination and comparison is to search, recover and analyse items for firearms discharge residue and comparison against reference items, firearms and ammunition for intelligence and direct evidential purposes.

2.10 Blood Pattern Analysis

Blood pattern analysis is the interpretation of bloodstain patterns present at predominantly violent crime scenes.

The main types of blood stain patterns are:

- Single Drops
- Contact Stains
- Impact Spatter
- Cast-off
- Arterial Damage Stains
- Large Volume Stains
- Physiologically Altered Blood Stains (PABS)

The evaluation of bloodstain patterns is a complex issue which may help determine the events that occurred during the course of a crime. This analysis requires detailed information of the incident under investigation. For example; who bled, extent of bleeding, nature of the assault (kicking, punching/ weapons used), how many blows and importantly, what defence is being provided by the suspect(s). The evidence provided by bloodstain pattern analysis may be used to support or refute a particular version of events as given by a suspect or witness.

2.10.1 Single Drops

Blood will drip from any surface if there is sufficient volume for it to drop from e.g. fabric, hands, weapons. The volume of the drops is dependent on the surface area of its source; a large surface area provides more surface tension resulting in larger drops. Similarly, a small surface area provides less surface tension resulting in the production of smaller drops.

The size of a blood drop is dependent on the volume of the drop, the nature of the surface and the dropping height. Therefore, it is not possible to determine the dropping height from the size of the stain alone unless other parameters are known.

For a constant volume:

- Increasing the dropping height results in an increasing stain size until terminal velocity is reached.
- Landing on a smooth surface will produce a large stain
- Landing on an absorbent surface will produce a small stain

A drop is always a sphere whether it is free-falling or projected. Drops will not break up in flight unless they are acted upon by another force e.g. landing on a surface. A drop landing on a perpendicular surface will produce a more or less round stain. A drop landing on at an oblique angle will produce an oval, elongated stain similar to an exclamation mark. The tapered, elongated end of the stain points in the direction of travel.

Blood on a non-horizontal surface will pool or run; this can be used to orientate a surface which has been moved. In addition, blood falling into blood produces secondary spattering.

2.10.2 Contact Stains

Wipe – a wipe pattern is created when an object contacts a wet blood stain, removing blood from it and altering its appearance. When small spots are wiped when partially dried they produce a “polo” effect and it is usually possible to determine the direction of the wipe

Swipe – the contact transfer of blood onto a surface not already blood stained

A transfer pattern – a pattern from which the identity of the object causing the staining can be identified e.g. finger mark, weapon marks, hair marks, fabric marks, footwear marks

2.10.3 Impact Spatter

Impact spatter patterns arise as a result of a direct force, in the form of impact, into a source of wet blood, at a single area in time and space. The impact breaks the blood into small droplets and propels the droplets away from the site of impact.

The greater the force, the smaller the droplets; smaller droplets travel less distance before being overcome by air resistance; therefore, larger droplets will travel further for the same impact. An impact spatter pattern will contain stains of a range of sizes.

2.10.4 Cast-off Stains

Cast-off stains result from a transfer of momentum from a moving object to any blood staining on the object. There are two main types of cast-off staining; swing and cessation. These are commonly associated with the swinging of weapons stained with blood staining.

Swing cast-off staining results from the droplets thrown from a swinging bloodied object e.g. a long bloodied weapon.

Cessation cast-off staining results from a moving object wet with blood coming to an abrupt stop. The blood staining continues to move in the same direction and is thrown off

2.10.5 Arterial Damage Stains

The arteries most likely to be damaged during assaults are the temporal (head/temples), carotid (neck), radial (wrist), aorta (chest) and femoral (thigh). Blood stains from damaged arteries are not dependent on the action which caused the damage (unlike impact and cast-off staining); the projecting force is pressure from the arterial system.

An arterial gush will result in a large stain resulting from a stream of blood hitting a surface and may also show secondary spattering. This type of staining is usually associated with lack of movement.

An arterial spurt is a series of large stains resulting from a column of droplets. This type of staining is usually associated with movement. If a victim is moving a wave pattern corresponding to heart beats may be seen.

The volume of blood involved in causing arterial stains will usually result in runs on a vertical surface.

2.10.6 Large Volume Stains

Large volume stains are usually associated with prolonged bleeding onto a surface or arterial damage stains.

Pools of blood are commonly associated with the position of a body which would confirm that the victim bled in the position it was found. Pools of blood away from a body will indicate that the body had been moved.

2.10.7 Physiologically Altered Blood Stains (PABS)

PABS are stains showing characteristics resulting from changes to the blood just prior to or after leaving the body. These changes can consist of drying, clotting or mixing with other body fluids e.g. other body fluids like saliva or other fluids like water.

2.11 Case Review

Over time it may prove necessary to review and research historic case files, relevant paperwork exhibits including archive folders with reference to a specific previously investigated case or series of cases. This is often referred to as a cold case review.

As scientific techniques are constantly developing consideration can be given to review and research previous analysis and associated results, identifying further examinations/analysis which may further progress the investigation.

2.12 Entomology

Forensic Entomology is the use of insects to assist in legal investigation often concerning suspicious deaths or murders. Evidence from insects can provide valuable information regarding the post-mortem interval, the circumstances surrounding death, along with any change in the location of the body after death. This evidence type may be considered when it is suspected an individual has been dead for some time.

2.13 E-Forensics

E-Forensics is an area which has expanded greatly in recent years as a consequence of advances in technology. The abundance of digital devices available and the advances in digital communications mean that digital evidence is now present or potentially present in almost every crime.

There are a number of locations where digital evidence can be found including:

- locally on an end-user device (e.g. computer, mobile/smart phone, satellite navigation system, USB drive, or digital camera);
- on a remote resource that is public (e.g. social networking websites, discussion forums, and newsgroups);
- on a remote resource that is private (e.g. ISP logs of users' activity, a mobile phone company's records of customers' billing, a user's webmail account, and a user's remote file storage);
- in transit (e.g. mobile phone text messages, voice calls, emails, internet chat).

When formulating forensic strategies relating to digital evidence consideration should always be given to the benefits to the overall investigation of conducting any digital forensic work.

A wide variety of legislation may apply in examinations of digital evidence, such as:

- Computer Misuse Act 1990
- The Police and Criminal Evidence Act 1984
- Criminal Justice and Police Act 2001
- Sexual Offences Act 2003
- Coroners and Justice Act 2009
- Regulation of Investigatory Powers Act 2000

For further detailed information refer to:
The ACPO Good Practice Guide for Digital Evidence

Section 3

Crime Types

- 3.1 Violence against the Person
- 3.2 Sexual Offences
- 3.3 Robbery
- 3.4 Burglary
- 3.5 Theft & Handling Stolen Goods
- 3.6 Police Recorded other Fraud and Forgery
- 3.7 Criminal Damage
- 3.8 Drug Offences
- 3.9 Other Offences
- 3.10 Acts of Parliament and Common Law

3.1 Violence against the Person

| Offence | HO Offence Code |
|---|-----------------|
| Murder | 1 |
| Attempted Murder | 2 |
| Conspiracy to Murder | 3A |
| Threats to Kill | 3B |
| Manslaughter | 4/1 |
| Infanticide | 4/2 |
| Intentional Destruction of a Viable Unborn Child | 4/3 |
| Causing Death by Dangerous Driving | 4/4 |
| Causing Death by Careless Driving under Influence of Drink or Drugs | 4/6 |
| Causing or Allowing Death of Child or Vulnerable Person | 4/7 |
| Causing Death by Careless or Inconsiderate Driving | 4/8 |
| Causing Death by Driving: Unlicensed, Disqualified or Uninsured Drivers | 4/9 |
| Corporate Manslaughter | 4/10 |
| Wounding or carrying out an act Endangering Life | 5A |
| Use of Substance or Object to Endanger Life | 5B |
| Possession of Items to Endanger Life | 5C |
| Endangering Railway Passengers | 6 |
| Endangering Life at Sea | 7 |
| Inflicting Grievous Bodily Harm | 8F |
| Actual Bodily Harm and other Injury | 8G |

| Offence | HO Offence Code |
|---|-----------------|
| Racially or Religiously Aggravated Inflicting Grievous Bodily Harm without intent | 8H |
| Racially or Religiously Aggravated Actual Bodily Harm and other Injury | 8J |
| Poisoning or Female Genital Mutilation | 8K |
| Harassment | 8L |
| Racially or Religiously Aggravated Harassment | 8M |
| Public Fear, Alarm or Distress | 9A |
| Racially or Religiously Aggravated Public Fear, Alarm or Distress | 9B |
| Possession of Firearms with Intent | 10A |
| Possession of Firearms Offences | 10B |
| Possession of Other Weapons | 10C |
| Possession of Article with Blade or Point | 10D |
| Cruelty to and Neglect of Children | 11 |
| Abandoning Child Under Two Years | 12 |
| Child Abduction | 13 |
| Procuring Illegal Abortion | 14 |
| Causing Death by Aggravated Vehicle Taking | 37/1 |
| Assault without Injury on a Constable | 104 |
| Assault without Injury | 105A |
| Racially or Religiously Aggravated Assault without Injury | 105B |

3.1.1 Murder

Murder is committed when a person unlawfully kills another human being under the Queen's Peace, with malice aforethought. A conviction for murder carries a mandatory sentence of life imprisonment. The mens rea for murder is an intention to kill, or to cause grievous bodily harm. Murder is therefore a crime of 'specific intent'.

Offence – Murder – Common Law

The penalty for murder is life imprisonment.

3.1.2 Manslaughter

Traditionally this subject is divided into two classifications – voluntary and involuntary manslaughter. Manslaughter, like murder is the unlawful killing of another human being. What it does not require is the intention to kill or cause grievous bodily harm.

Offence – Manslaughter – Common Law

The maximum penalty for manslaughter is life imprisonment.

3.1.3 Assault

An offence of common assault is committed when a person either assaults or inflicts a battery upon another person.

An assault is any intentional or reckless act which causes a person to apprehend immediate unlawful force or personal violence. An assault may involve a threat alone it does not have to involve an actual application of force, which would be battery.

Battery is any intentional or reckless infliction of unlawful force or personal violence. A battery may include an assault and can be committed indirectly.

The maximum penalty for common assault and battery is six months imprisonment.

Offence – Common Assault/Battery – Criminal Justice Act 1988, s. 39

Common assault is an offence where it has been deemed necessary to increase the maximum penalty available to the courts if it is committed under racially aggravated circumstances.

Offence – Racially Aggravated – Crime and Disorder Act 1998, s. 29 (1)

The Crime and Disorder Act 1998, s. 29 states:

- (1) A person is guilty of an offence under this section if he commits
- (a) an offence under section 20 of the Offences Against the Person Act 1861 (malicious wounding or grievous bodily harm);
 - (b) an offence under section 47 of that Act (actual bodily harm); or
 - (c) common assault,

which is racially or religiously aggravated for the purposes of this section.

The maximum penalty for Racially Aggravated Common Assault is two years imprisonment.

Offence – Assault Occasioning Actual Bodily Harm – Offences against the Person Act 1861, s. 47

The Offences against the Person Act 1861, s. 47 states:

Whosoever shall be convicted upon indictment of any assault occasioning actual bodily harm shall be guilty of an offence.

To prove assault occasioning actual bodily harm (ABH) it is necessary to show that ‘actual bodily harm’ was a consequence of the defendant’s actions.

Examples of what will amount to ‘actual bodily harm’ include:

- Loss or breaking of teeth
- Temporary loss of sensory functions
- Extensive or multiple bruising
- Minor fractures and cuts requiring stitches
- Psychiatric injury going beyond fear, distress or panic.

The maximum penalty for ABH is five years imprisonment.

Offence – Wounding or Inflicting Grievous Bodily Harm – Offences against the Person Act 1861 s. 20

The Offences against the Person Act 1861, s. 20 states:

Whosoever shall unlawfully and maliciously wound or inflict any grievous bodily harm upon any other person, either with or without any weapon or instrument shall be guilty of an offence.

Wounding is a breaking of the 'whole' skin or the continuity of the skin.

To prove grievous bodily harm (GBH) it is necessary to show that the defendant intended, or actually foresaw, that the act might cause some harm.

Examples of what will amount to 'grievous bodily harm' include:

- Injury resulting in some permanent disability or visible disfigurement
- Broken or displaced limbs or bones
- Injuries requiring blood transfusion or lengthy treatment
- Serious psychiatric injury

The maximum penalty for GBH is five years imprisonment.

Offence – Wounding or Causing Grievous Bodily Harm with Intent – Offences against the Person Act 1861, s. 18

The Offences against the Person Act 1861, s. 18 states:

Whosoever shall unlawfully and maliciously by any means whatsoever wound or cause any grievous bodily harm to any person with intent to do some grievous bodily harm to any person, or with intent to resist or prevent the lawful apprehension or detainer of any person, shall be guilty of an offence.

Factors that will assist in proving grievous bodily harm with intent include:

- A repeated or planned attack;
- Deliberate selection of a weapon or adaptation of an article to cause injury, such as breaking a glass before an attack;
- Making prior threats;
- Using an offensive weapon against, or kicking the victim's head.

The gravity of the injury resulting is not the determining factor, although it may provide some evidence of intent.

To prove grievous bodily harm with intent it is necessary to show that the defendant intended to cause GBH, or that he knew that GBH was virtually a certain consequence of his act.

The maximum penalty for GBH with Intent is life imprisonment.

3.2 Sexual Offences

| Offence | HO Offence Code |
|---|-----------------|
| Sexual Assault on a Male aged 13 and over | 17A |
| Sexual Assault on a Male Child under 13 | 17B |
| Rape of a Female aged 16 and over | 19C |
| Rape of a Female Child under 16 | 19D |
| Rape of a Female Child under 13 | 19E |
| Rape of a Male aged 16 and over | 19F |
| Rape of a Male Child under 16 | 19G |
| Rape of a Male Child under 13 | 19H |
| Sexual Assault on a Female aged 13 and over | 20A |
| Sexual Assault on a Female Child under 13 | 20B |
| Sexual Activity involving a Child under 13 | 21 |
| Causing Sexual Activity without Consent | 22A |
| Sexual Activity involving a Child under 16 | 22B |

| Offence | HO Offence Code |
|--|-----------------|
| Incest or Familial Sexual Offences | 23 |
| Exploitation of Prostitution | 24 |
| Soliciting for the Purpose of Prostitution | 27 |
| Sexual Activity etc with a Person with a Mental Disorder | 70 |
| Abuse of Children through Prostitution and Pornography | 71 |
| Trafficking for Sexual Exploitation | 72 |
| Abuse of Position of Trust of a Sexual Nature | 73 |
| Sexual Grooming | 88A |
| Other Miscellaneous Sexual Offences | 88C |
| Unnatural Sexual Offences | 88D |
| Exposure and Voyeurism | 88E |

Offence – Rape – Sexual Offences Act 2003, s. 1

The Sexual Offences Act 2003, s. 1 states:

- (1) A person (A) commits an offence if -
- (a) he intentionally penetrates the vagina, anus or mouth of another person (B) with his penis,
 - (b) B does not consent to the penetration, and
 - (c) A does not reasonably believe that B consents.
- (2) Whether a belief is reasonable is to be determined having regard to all the circumstances, including any steps A has taken to ascertain whether B consents.

To prove rape it is necessary to show that the defendant had 'sexual intercourse' with the victim.

The issue of consent is a question of fact and is critical to proving the offence of rape.

The maximum penalty for rape is life imprisonment.

3.3 Robbery

| Offence | HO Offence Code |
|------------------------------|-----------------|
| Robbery of Business Property | 34A |
| Robbery of Personal Property | 34B |

Offence – Robbery – Theft Act 1968, s. 8

The Theft Act 1968, s.8 states:

- (1) A person is guilty of robbery if he steals, and immediately before or at any time of doing so, and in order to do so, he uses force on any person or puts or seeks to put any person in fear of being then and there subjected to force.
- (2) A person guilty of robbery, or of an assault with intent to rob, shall on conviction on indictment be liable to imprisonment for life.

Robbery is an aggravated form of theft and, therefore, a theft has to be proved. If no theft is present there is no robbery, though an attempted robbery is always a possibility, depending on the circumstances.

The maximum penalty for robbery is life imprisonment.

3.4 Burglary

| Offence | HO Offence Code |
|---|-----------------|
| Burglary in a Dwelling | 28A |
| Attempted Burglary in a Dwelling | 28B |
| Distraction Burglary in a Dwelling | 28C |
| Attempted Distraction Burglary in a Dwelling | 28D |
| Aggravated Burglary in a Dwelling | 29 |
| Burglary in a Building other than a Dwelling | 30A |
| Attempted Burglary in a Building other than a Dwelling | 30B |
| Aggravated Burglary in a Building other than a Dwelling | 31 |

Offence – Burglary – Theft Act 1968, s. 9

The Theft Act 1968, s. 9 states:

(1) A person is guilty of burglary if -

- (a) he enters any building or part of a building as a trespasser and with intent to commit any such offence as mentioned in subsection (2) below; or
- (b) having entered any building or part of a building as a trespasser he steals or attempts to steal anything in the building or that part of it or inflicts or attempts to inflict on any person therein any grievous bodily harm.

(2) The offences referred to in subsection (1)(a) above are offences of stealing anything in the building or part of a building in question, of inflicting on any person therein any grievous bodily harm or raping any person therein, and of doing unlawful damage to the building or anything therein.

For the purposes of burglary, a dwelling is defined as:

- An inhabited building
- A vehicle or vessel which is, at the time of the offence, inhabited (irrespective of whether or not the person who occupies the vehicle/vessel is present at the time of the burglary).

The penalty for the burglary of a dwelling house is greater than that for an ordinary building, but it is necessary to show that the accused either:

- Knew someone was living there, or
- Was at least reckless as to anyone living there.

The maximum penalty for burglary is 14 years imprisonment

Offence – Aggravated Burglary – Theft Act 1968, s. 10

The Theft Act 1968, s. 10 states:

(1) A person is guilty of aggravated burglary if he commits any burglary and at the time has with him any firearm or imitation firearm, any weapon of offence or any explosive; and for this purpose -

- (a) 'firearm' includes an airgun or pistol, and 'imitation firearm' means anything which has the appearance of being a firearm, whether capable of being discharged or not, and
- (b) 'weapon of offence' means any article made or adapted for use for causing injury to or incapacitating a person, or intended by the person having it with him for such use; and
- (c) 'explosive' means any article manufactured for the purpose of producing a practical effect by explosion, or intended by the person having it with him for that purpose.

The maximum penalty for aggravated burglary is life imprisonment.

3.5 Theft & Handling Stolen Goods

| Offence | HO Offence Code |
|---|-----------------|
| Aggravated Vehicle Taking | 37/2 |
| Profiting from or Concealing Knowledge of the Proceeds of Crime | 38 |
| Theft from the Person | 39 |
| Theft in a Dwelling other than from an Automatic Machine or Meter | 40 |
| Theft by an Employee | 41 |
| Theft of Mail | 42 |
| Dishonest use of Electricity | 43 |
| Theft or Unauthorised Taking of a Pedal Cycle | 44 |
| Theft from a Vehicle | 45 |
| Shoplifting | 46 |
| Theft from an Automatic Machine or Meter | 47 |
| Theft or Unauthorised Taking of a Motor Vehicle | 48 |
| Other Theft | 49 |
| Handling Stolen Goods | 54 |
| Interfering with a Motor Vehicle | 126 |

Offence – Theft – Theft Act 1968, s. 1

The Theft Act 1968, s. 1 states:

- (1) A person is guilty of theft if he dishonestly appropriates property belonging to another with the intention of permanently depriving the other of it; and ‘thief’ and ‘steal’ shall be construed accordingly.

To prove an offence of theft it is necessary to show:

- A person to have acted ‘dishonestly’
- An intention to permanently deprive

Where an appropriation takes place and is accompanied by the required dishonesty and intention to deprive permanently, there will be a theft.

The maximum penalty for theft is seven years imprisonment.

Offence – Taking a Conveyance without the Owner’s Consent – Theft Act 1968, s. 12

The Theft Act 1968, s. 12 states:

- (1) Subject to subsections (5) and (6) below, a person shall be guilty of an offence if, without having the consent of the owner or other lawful authority, he takes any conveyance for his own or another’s use or, knowing that any conveyance has been taken without such authority, drives it or allows himself to be carried in or on it.

To prove this offence it is necessary to show that the vehicle or conveyance was moved.

The maximum penalty for taking a conveyance without the owner’s consent is six months imprisonment.

3.6 Police Recorded other Fraud and Forgery

| Offence | HO Offence Code |
|--|-----------------|
| Preserved Other Fraud and Repealed Fraud Offences (Pre Fraud Act 2006) | 53B |
| Other Fraud | 53D |
| Fraud by Failing to Disclose Information | 53E |
| Fraud by Abuse of Position | 53F |
| Making or Supplying Articles for use in Fraud | 53H |
| Possession of Articles for use in Fraud | 53J |
| Forgery or use of Drug Prescription | 60 |
| Other Forgery | 61 |
| Possession of False Documents | 61A |
| Fraud, Forgery etc associated with Vehicle or Driver Records | 814 |

3.7 Criminal Damage

| Offence | HO Offence Code |
|--|-----------------|
| Arson Endangering Life | 56A |
| Arson not Endangering Life | 56B |
| Criminal Damage to a Dwelling | 58A |
| Criminal Damage to a Building other than a Dwelling | 58B |
| Criminal Damage to a Vehicle | 58C |
| Other Criminal Damage | 58D |
| Racially or Religiously Aggravated Criminal Damage to a Dwelling | 58E |
| Racially or Religiously Aggravated Criminal Damage to a Building other than a Dwelling | 58F |
| Racially or Religiously Aggravated Criminal Damage to a Vehicle | 58G |
| Racially or Religiously Aggravated Other Criminal Damage | 58H |
| Threat or Possession with Intent to Commit Criminal Damage | 59 |

The law regulating criminal damage is largely contained within one statute, the Criminal Damage Act 1971. This Act deals with occasions where a person:

- actually damages or destroys the property of another (simple damage)
- damages or destroys his/her own property or that of another where there are 'aggravating' factors or circumstances (aggravated damage)
- threatens to damage or destroy property
- has articles to be used for damaging or destroying property
- commits an offence which is 'racially aggravated'.

Offence – Simple Damage – Criminal Damage Act 1971, s. 1(1)

The Criminal Damage Act, 1971 s. 1 states:

- (1) A person who without lawful excuse destroys or damages any property belonging to another intending to destroy or damage any such property or being reckless as to whether any such property would be destroyed or damaged shall be guilty of an offence.

An offence of criminal damage under s. 1(1) can be proved by showing that the defendant was 'reckless', which will mean proving that:

- the defendant does an act which in fact creates an obvious risk that property will be destroyed or damaged, and
- when doing the act, the defendant either has not given any thought to the possibility of there being such a risk or has recognised that there was some risk involved and has nevertheless gone on to do it.

The maximum penalty for simple damage is ten years imprisonment on indictment; six months imprisonment and/or a fine summarily.

Offence – Aggravated Damage – Criminal Damage Act 1971, s. 1 (2)

The Criminal Damage Act, 1971, s. 1 states:

- (2) A person who without lawful excuse destroys or damages any property, whether belonging to himself or another –
- (a) intending to destroy or damage any property or being reckless as to whether any property would be destroyed or damaged; and
 - (b) intending by the destruction or damage to endanger the life of another or being reckless as to whether the life of another would be thereby endangered; shall be guilty of an offence

In order to prove a defendant's recklessness it is necessary to apply an objective test:

- would the risk have been obvious to a reasonable person watching the defendant's behaviour?

It is also necessary to show that the defendant either intended or was reckless to:

- the damage being caused
- the resultant danger to life

The maximum penalty for aggravated damage is life imprisonment.

3.7.1 Arson

Offence – Arson – Criminal Damage Act 1971, s. 1(3)

The Criminal Damage Act 1971, s. 1 states:

(3) An offence committed under this section by destroying or damaging property by fire shall be charged as arson

The offence of arson with intent to endanger life is contrary to sections 1(2), and 1(3) of the Criminal Damage Act 1971. The maximum penalty for arson with intent to endanger life is life imprisonment.

3.8 Drug Offences

| Offence | HO Offence Code |
|---|-----------------|
| Trafficking in Controlled Drugs | 92A |
| Other Drug Offences | 92C |
| Possession of Controlled Drugs (excluding Cannabis) | 92D |
| Possession of Controlled Drugs (Cannabis) | 92E |

3.8.1 Drug Trafficking

The Drug Trafficking Act 1994 addresses the production, movement and storage of controlled drugs, together with the proceeds of drug trafficking.

3.8.2 Controlled Drugs

Drugs which are subject to the provisions of the Misuse of Drugs Act 1971 are listed in Parts I to II of Schedule 2.

Offence – Producing Controlled Drug – Misuse of Drugs Act 1971, s. 4(2)

The Misuse of Drugs Act 1971, s. 4 states:

(2) Subject to section 28 of this Act, it is an offence for a person –

(a) to produce a controlled drug in contravention of subsection (1) ... ; or

(b) to be concerned in the production of such a drug in contravention of that subsection by another.

Offence – Supplying Controlled Drug – Misuse of Drugs Act 1971, s.4(3)

The Misuse of Drugs Act 1971, s.4 states:

(3) Subject to section 28 of this Act, it is an offence for a person –

(a) to supply or offer to supply a controlled drug to another in contravention of subsection (1); or

(b) to be concerned in the supplying of such a drug to another in contravention of that subsection; or

(c) to be concerned in the making to another in contravention of that subsection of an offer to supply such a drug

In order to prove the offence of being concerned in the supply/offer to supply a controlled drug, it is necessary to show:

- The actual supply of, or making of an offer to supply, a controlled drug
- The participation of the defendant in that enterprise and
- Knowledge by the defendant that the enterprise involved the supply of, or making of an offer to supply a controlled drug

Offence – Possession of Controlled Drug – Misuse of Drugs Act 1971, s. 5(2)

The Misuse of Drugs Act 1971, s.5 states:

- (2) Subject to section 28 of this Act and to subsection (4) below, it is an offence for a person to have a controlled drug in his possession in contravention of subsection (1)

...

To prove possession of a controlled drug it is necessary to show that a defendant both:

- Had a controlled drug in his/her possession; and
- Knew that he/she had something in his/her possession which was in fact a controlled drug.

Offence – Possession with Intent to Supply – Misuse of Drugs Act 1971, s. 5(3)

The Misuse of Drugs Act 1971, s. 5 states:

- (3) Subject to section 28 of this Act, it is an offence for a person to have a controlled drug in his possession, whether lawfully or not, with intent to supply it to another in contravention of section 4(1) of this Act.

Offence – Cultivation of Cannabis – Misuse of Drugs Act 1971, s. 6

The Misuse of Drugs Act 1971, s. 6 states:

- (1) Subject to any regulations under section 7 of this Act for the time being in force, it shall not be lawful for a person to cultivate any plant of the genus Cannabis.

- (2) Subject to section 28 of this Act, it is an offence to cultivate any such plant in contravention of subsection (1) above.

3.9 Other Offences

| Offence | HO Offence Code |
|--|-----------------|
| Concealing an Infant Death Close to Birth | 15 |
| Bigamy | 26 |
| Going Equipped for Stealing etc | 33 |
| Blackmail | 35 |
| Kidnapping | 36 |
| Treason | 62 |
| Treason – Felony | 63 |
| Riot | 64 |
| Violent Disorder | 65 |
| Other Offences against the State or Public Order | 66 |
| Perjury | 67 |
| Libel | 68 |
| Offender Management Act | 69 |
| Betting, Gaming and Lotteries | 75 |
| Aiding Suicide | 76 |
| Immigration Acts | 78 |

| Offence | HO Offence Code |
|---|-----------------|
| Perverting the Course of Justice | 79 |
| Absconding from Lawful Custody | 80 |
| Other Firearms Offences | 81 |
| Customs and Revenue Offences | 82 |
| Bail Offences | 83 |
| Trade Descriptions etc | 84 |
| Health and Safety Offences | 85 |
| Obscene Publications etc | 86 |
| Protection from Eviction | 87 |
| Adulteration of Food | 89 |
| Other Knives Offences | 90 |
| Public Health Offences | 91 |
| Planning Laws | 94 |
| Disclosure, Obstruction, False or Misleading Statements etc | 95 |
| Other Notifiable Offences | 98,99 |
| Dangerous Driving | 802 |
| | |

3.10 Acts of Parliament and Common Law

Anti-terrorism, Crime and Security Act 2001 – legislation to make further provision about terrorism and security; to provide for the freezing of assets; to make provision about immigration and asylum; to amend or extend the criminal law and powers for preventing crime and enforcing that law; to make provision about the control of pathogens and toxins; to provide for the retention of communications data; to provide for the implementation of Title VI

of the Treaty on European Union; and for connected purposes. The Act also amends the Terrorism Act 2000.

Computer Misuse Act 1990 – makes provisions for securing computer material against unauthorised access or modification.

Criminal Damage Act 1971 – provides various offences relating to the destruction of, and damage to, property, most notably ‘criminal damage’ and ‘arson’.

Criminal Justice Act 1988 – includes provisions to provide anonymity in rape and similar cases, in addition it creates offences of torture, having a blade or point in a public place, further offences relating to weapons and possession of indecent photographs of children.

Criminal Procedure and Investigations Act 1996 – lays down provisions for prosecution and defence disclosure to be conducted in stages within criminal proceedings. It also outlines the responsibilities of the police with regards to material for the purposes of prosecution disclosure and creates a code of practice for the police to comply with.

Firearms Act 1968 – consolidates the Firearms Acts 1937 and 1965, Air Guns and Shot Guns Act 1962 and Part V of the Criminal Justice Act 1967. The provisions include controls on the acquiring, possession, sale and conversion of firearms and offences in relation to the criminal use of firearms and air weapons.

Fraud Act 2006 – makes provisions for, and in connection with, criminal liability for fraud and obtaining services dishonestly.

Human Tissue Act 2004 – an Act that governs the removal, storage and use of human organs and other tissue.

Medicines Act 1968 – legislation to regulate medicines – including the licensing and regulation of the production, import, export, and sale of medicinal products and related matters.

Misuse of Drugs Act 1971 – makes provision with respect to dangerous drugs or otherwise harmful drugs including their classification and restriction on their importation/exportation, production, possession or cultivation.

Offences against the Person Act 1861 – creates provisions relating to offences against the person, including threats to kill, conspiracy to murder, grievous bodily harm, wounding, assault, bigamy, procuring abortion and other kindred offences.

Police and Criminal Evidence Act 1984 – makes provisions in relation to police powers, police duties, persons in police detention, evidence, police discipline and complaints against the police.

Public Order Act 1986 – legislation which abolished the common law offences of riot, unlawful assembly and affray and created offences and police powers with regard to the preservation of public order and the control of public assemblies. In addition provisions were introduced in relation to stirring up racial hatred, the contamination of or interference with goods and to provide for exclusion of certain offenders from sporting events.

Regulation of Investigatory Powers Act 2000 – makes provision for and about the interception of communications, the acquisition and disclosure of data relating to communications, the carrying out of surveillance, the use of covert human intelligence sources and the acquisition of the means by which electronic data protected by encryption or passwords may be decrypted or accessed; to provide for the establishment of a tribunal with jurisdiction in relation to those matters, to entries on and interference with property or with wireless telegraphy and to the carrying out of their functions by the Security Service, the Secret Intelligence Service and the Government Communications Headquarters; and for connected purposes.

Road Traffic Act 1988 – creates provisions in relation to driving, drink/drive, cycling and racing on public highways. In addition; protective and safety measures, dangerous parking, testing of vehicles, vehicle examiners and the licensing of drivers, their

instruction and third party liability insurance are also covered.

Sexual Offences Act 2003 – makes new provision about sexual offences, their prevention and the protection of children from harm from other sexual acts, and for connected purposes.

Terrorism Act 2000 – reforms and extends provisions in relation to counter-terrorism to cover all forms of terrorism, Irish, international and domestic.

Theft Act 1968 – legislation relating to theft, burglary, robbery, handling and similar, along with provisions relating to criminal proceedings by one party to a marriage against another.

For further detailed information refer to:
Police National Legal Database (PNLD)

Please note: The information contained within this section is not to be considered as legal guidance.

Section 4

Investigative and Forensic Strategies

- 4.1 Formulating Forensic Strategies
- 4.2 Investigations involving Volume Crime Scene Stains
- 4.3 Investigations involving DNA evidence
- 4.4 Investigations involving Footwear evidence
- 4.5 Investigations involving Glass evidence
- 4.6 Investigations involving Drugs evidence
- 4.7 Assault Cases involving Blood
- 4.8 Investigations involving Sexual Offences
- 4.9 Investigations involving Firearms
- 4.10 Investigations involving Toxicology Evidence
- 4.11 Investigations involving Questioned Documents
- 4.12 Arson Investigation
- 4.13 Investigations involving Fibres
- 4.14 Staged Reporting
- 4.15 Case File Progression

4.1 Formulating Forensic Strategies

The theory of a case assessment and interpretation model has evolved over a number of years with most forces using this concept in order to ensure cost-effectiveness of their casework activities. The objective of such a model enables forensic submissions units to provide a centralised submissions service for the force to ensure the requirements of the Criminal Justice System are met and that best value is obtained from the available forensic resources.

In order to formulate forensic strategies, forensic submissions officers should have detailed knowledge of the circumstances of the case so that consideration can be given to what kind of examinations may be carried out and what may be expected from them. From the start it is important to take a balanced view of the case including learning what any suspects say to explain what has happened. This often leads to looking not only at the prosecution proposition but also a defence proposition.

The simplest level of propositions to be considered is those relating to the source of evidentiary material. For example, the blood on A's clothing came from B, with a defence proposition being the blood on A's clothing came from an unknown person. It is not always necessary if only considering source level propositions to have all the information surrounding the circumstances of the offence. This becomes more important at the second level when considering activities due to the level of interpretation of the findings at this stage.

The second level to consider is the propositions relating to activities. For example, A is the man who kicked B in the head, with a defence proposition being A was not present at the kicking of B. Whilst considering observations, measurement and analysis at this stage issues such as the potential of evidential transfer and persistence need to be considered.

The third level of propositions to be considered is those relating to an actual offence. For example A assaulted B, with a defence proposition being A had nothing to do with the assault of B. This level of proposition often corresponds with those which a jury would consider in the event of a trial. The higher the level of propositions that are addressed the greater the value added by the scientific evidence.

The usefulness of forensic science to police forces depends primarily on appropriate integration into their investigative processes and subsequently, on the proper understanding of findings within the criminal justice system.

Forensic science has the potential to make the following contributions:

- It can be used to eliminate suspects from the investigation
- It can inform enquiries, for example by reducing the range of possible suspects or by clarifying circumstance
- It can be used to link incidents
- It can corroborate suspicions by linking suspects to scenes
- It can directly identify an unknown

Results may conclusively eliminate suspects though most techniques provide associative evidence short of conclusive proof. One of the benefits from forensic science in crime investigation is the effective investigation of crime leading to the identification and prosecution of the guilty and the rapid elimination of the innocent from investigation. Forensic evidence can be used to exonerate the innocent as well as prove guilt.

The most relevant items recovered from crime scenes should be submitted for examination in order to maximise the forensic science yield in each case. It is important only to submit necessary items to be examined in order to increase overall cost-effectiveness. However, care should be taken not to lose sight of the overall investigative objectives of scientific support in an effort to minimise costs.

Crime scenes are not limited to the site of an offence, but can include the suspect, the victim, any witness to be interviewed or eliminated from the investigation, or the homes of suspects, victims and witnesses. All of these can be sources of contact trace material.

Evidence recovered from a scene should be based on an intelligent assessment of the potential worth of the evidence to the enquiry. When making decisions to submit items forensic submissions officers should be aware of the likely intrinsic strength of various evidence types, and should make decisions based on this knowledge, the circumstances of each case, and any force policies. Any criteria should be seen as such, and not as 'rules', to allow the exercise of the forensic submissions officer's professional discretion. It should be borne in mind that any item of forensic evidence may assume major importance at a late stage in an investigation due to a change in the investigation.

It is important that the decision to send potential evidence for analysis is taken on entirely objective grounds following consideration of the existing evidence and the objectives of the enquiry. Urgent submissions should be prioritised as per force policy.

Recommendations

- Forensic submissions officers should review the circumstances, evidence and needs together, with advice on the potential of physical evidence
- Submissions should be selected on a case, rather than item basis following a review of the likely benefits of analysis to the investigation
- Examinations should be performed sequentially where appropriate

4.2 Investigations involving Volume Crime Scene Stains

Volume crime includes the following crime types:

- Street Robbery
- Burglary – Dwelling
- Burglary Other
- Theft (including shoplifting)
- Vehicle Crime – Theft of
- Vehicle Crime – Theft from
- Criminal Damage
- Drugs (link with acquisitive crime).

There are a variety of contact or trace materials likely to be found at a scene of crime including fingerprints, blood and body fluids, footwear marks and abandoned clothing and tools, all of which could provide intelligence links to named suspects. In addition, evidential material in the form of glass, paint, fibres, hairs and tool marks can provide strong corroborative evidence to link a suspect with a crime scene or eliminate a person from police enquiries.

Although every case should still be assessed on its own merits on a case-by-case basis, the Forensic Submissions National Trend Report established trends from national data, which have been aligned to detection data rather than solely examination success results. It makes a number of recommendations to allow forces submission staff to make informed decisions around submissions so that spend is concentrated in areas that provide the greatest opportunities.

Establishing the root cause around detection contribution is open to variances outside the control of a submission unit and therefore the report concentrates on providing these trends that maximise opportunities as cost effectively as possible. As such, trend analysis should be utilised as a mechanism to inform decision making, rather than do away with decision making.

For further detailed information refer to:
NPIA Forensic Submissions Trend Report – National Data

4.2.1 Burglary Dwelling

Burglary Dwelling is by far the most supported crime type within the crime scene stain submissions. Spend should still however be scrutinised.

The recent National Trend Report indicates forces should:

- Maximise the opportunities from blood submissions
- Whilst accepting that some detections are being achieved from Handled/Cellular the percentage of submissions/spend in this area is out of balance with detections being achieved. Forces being prudent with Handled/Cellular submissions are tending to concentrate on crimes which are part of a series, are serial or have an aggravating factor.
- When possible avoid chewing gum submissions
- In order to maximise the return on investment, more analysis is required when authorising cigarette ends, saliva and clothing in order to reduce the gap between the number of submissions/cost to detections being achieved.
 - » Criteria should include has legitimate access been eliminated?
 - » Location of item (minimise submissions from outside the scene)

Recommendations

- Handled/Cellular items should only be considered for crimes which are part of a series, are serial or offences with an aggravating factor.
- Chewing gum should not be routinely submitted.
- Cigarette ends, food, saliva and clothing may be considered. Ideally the item should be located INSIDE the scene.
- Blood items should be submitted routinely. If multiple blood submissions exist these should be staged with the first item examined ideally being furthest within the scene.

4.2.2 Burglary Other

Overall submission numbers are slightly lower within Burglary Other than with Burglary Dwelling offences but the trends remain the same.

The National Trend Report indicates forces should follow the same key lessons:

- Maximise the opportunities from blood submissions.
- Whilst accepting that some detections are being achieved from Handled/Cellular the percentage of submissions/spend in this area is out of balance with detections being achieved. Forces being prudent with Handled/Cellular submissions are tending to concentrate on crimes which are part of a series, are serial or have an aggravating factor.
- Avoid chewing gum submissions
- In order to maximise the return on investment, more analysis is required when authorising cigarette ends, saliva and clothing in order to reduce the gap of number of submissions/cost to detections being achieved.
 - » Criteria should include has legitimate access been eliminated?
 - » Location of item (minimise submissions from outside the scene)

Recommendations

- Submission of Handled/Cellular items should be kept to a minimum. Swabs should NOT routinely be considered. Tools left inside the scene may be considered.
- Chewing gum should not routinely be considered.
- Cigarette ends, food, saliva and clothing may be considered. Ideally the item should be located INSIDE the scene.
- Blood items should be submitted routinely. If multiple blood submissions exist these should be staged with the first item examined ideally being furthest within the scene.

4.2.3 Criminal Damage

It is accepted that criminal damage is not ordinarily a force priority. The National Trend Report indicates only 10% of the total budget is spent on this crime type.

Ordinarily forces should concentrate submissions in this crime category to blood submissions only.

Recommendations

- All items other than Blood should not routinely be submitted.
- Only blood should be considered as a routine submissions item.

4.2.4 Theft of Motor Vehicles

The National Trend Report highlights the poor overall detection rate associated with this crime type. It is felt that this could be due to the nature of stolen vehicles, associated as passengers and the issues with regards to legitimate access.

Forces should therefore consider:

- Maximising the opportunities from blood submissions
- Saliva from a fixed surface (e.g. Airbag) should then be the next priority item
- Only consider submission of the other item categories when:
 - » Legitimate access to or of the item has been eliminated
 - » The location of item is inside the scene

Recommendations

- Handled/Cellular and Chewing gum should not routinely be considered.
- Cigarette ends, food, saliva (except fixed surface, see below) and clothing submissions should be kept to a minimum and should have been recovered from INSIDE the scene.
- Blood items should be submitted routinely. If multiple blood submissions exist these should be staged with the first item examined ideally being furthest within the scene.
- Saliva from a fixed surface (e.g. Airbag) should also be routinely submitted.

4.2.5 Theft from Motor Vehicles

The 'smash and grab' nature of this crime type should be considered when authorising crime scene stain submissions.

Forces should therefore consider:

- Maximising the opportunities from blood submissions
- Handled/Cellular items should be kept to a minimum, ordinarily concentrating on tools left within the scene
- Avoid Chewing Gum submissions
- Submissions for cigarette ends, saliva and clothing should only be considered when:
 - » Legitimate access to or of the item has been eliminated
 - » The location of the item is inside the scene

Recommendations

- Submission of Handled/Cellular items should be kept to a minimum. Swabs should NOT routinely be considered. Tools left inside the scene may be considered.
- Chewing gum should not routinely be considered.
- Cigarette ends, food, saliva and clothing may be considered. The item should be located INSIDE the scene.
- Blood items should be submitted routinely. If multiple blood submissions exist these should be staged with the first item examined ideally being furthest inside the scene

4.2.6 General Recovery of Crime Scene Stains (CSS)

Chewing gum, cigarette end, saliva and clothing should only be recovered when injured party (IP)/ legitimate access has been eliminated. The item should preferably be inside the scene.

Food should continue to be recovered when a bite mark is visible and IP/legitimate access has been eliminated. The item should preferably be inside the scene.

Handled/Cellular swabs should only be recovered from virgin/clean areas INSIDE of the scene. For actual items, e.g. tools, these should only be recovered when IP/legitimate access has been eliminated. The item should be inside the scene.

All items that are subject to recovery but not submission should be exhibited and booked into the property store where they will remain for a period of six months. If they are not required for submission/evidential purposes after this time period they should be destroyed.

Recommendations

- Forensic submissions staff should state the number of DNA examinations authorised on CSS submissions clearly.
- For consistency of authorisation and budgetary control CSS submissions should ideally be performed centrally within Forensic submissions.

4.3 Investigations involving DNA evidence

Whilst DNA evidence is not unique, it is highly discriminatory. The following list is a guide to the potential success of obtaining a DNA profile from saliva stained items, ranging from those most likely (at the top of the list) to those least likely (at the bottom) to be successful:

- Buccal swab (reference mouth swab)
- Cigarette butt
- Saliva stain on gags
- Envelope flaps/stamps
- Saliva stains on balaclavas etc.
- Drinking vessels (non-fizzy)
- Drinking vessels (fizzy)
- Food items

DNA can also be obtained from:

- Blood
- Semen
- Hair roots
- Saliva
- Skin and tissue samples

Where possible the item itself should be submitted. Alternatively a CSI may swab the item at the scene or in an appropriate DNA clean environment.

Where a request is made for a DNA confirmation following a match on the National DNA Database Home Office Circular 58/2004 sets out the following policy:

“Searches may be carried out of the National DNA Database and a suspect may now be charged on the basis of a match between a profile from DNA from the scene of the crime and a profile on the National DNA Database from an individual, so long as there is further supporting evidence.”

However, there is a significant chance that matches involving partial DNA profiles (including SGM profiles) will not match if the profiles are upgraded to SGM+. Therefore, where any match is on the basis of a partial or SGM profile, then strong consideration should be given to upgrading the partial or SGM profile to SGM+

A suspect may be charged on the basis of a DNA intelligence match, derived from the crime scene, and a sample of DNA kept on the National DNA Database **provided there is some further supporting evidence**, to provide a realistic prospect of conviction.

In *R v Lashley* (2000), the Court of Appeal quashed a conviction based solely on DNA evidence. In that case the appellant had been convicted of robbery on the basis of DNA evidence linking him to the scene of the robbery. The DNA profile would have matched the profile of seven to ten other males in the United Kingdom. There was no other evidence against the appellant who had given a no comment interview and declined to give evidence. The Court

of Appeal held that the significance of the DNA evidence depended crucially upon what else is known about the suspect. Had there been other evidence (for example, evidence to show that he lived near the scene of the robbery or had been in the vicinity at the relevant time) then the case might have been compelling. As it was, the DNA evidence placed the appellant among a group of individuals, any one of whom might have been responsible for the offence.

Recommendations

- When submitting items for DNA examination consideration should be given to preserve items for further fingerprint examination as appropriate.

4.4 Investigations involving Footwear evidence

Upon arrest of a suspect consideration should be given to obtaining the suspect's footwear to assist in enquiries. By identifying the sole impression of the shoes worn by the suspect it may be possible using the relevant Footwear Intelligence databases to link any shoe marks from a crime scene to the type of shoe worn by a suspect.

Impressions of footwear recovered from crime scenes can be used to identify the type and make of a shoe. Also the way the tread wears and any damage features may allow identification of a particular shoe.

Many custody suites now have the ability to capture detainee footwear impressions which can be compared with those recovered at scenes as exhibits. However, for a direct comparison the actual footwear from the suspect will be required.

Prior to the taking of impressions from the footwear of persons in custody, officers should check the guidelines within their own force policy on the subject.

Recommendations

- It is advisable that every footwear submission is screened and assessed prior to being authorised.
- No footwear submission should be considered until a suspect has been interviewed about the relevant offence and any linked offences.

4.4.1 Footwear

The evidential value of a footwear submission can be determined prior to forwarding to an FSP by screening. There is a great deal of work that a force can carry out before a footwear submission is considered, such as,

- Coding and Intelligence Research
- Screening

This screening should be carried out by suitably trained and experienced footwear staff, and may ultimately negate the need for the submission.

Training opportunities

- The Footwear Specialist Learning Programme is available at the NPIA Forensic Training Centre, Harperley Hall. This modular programme provides training in footwear from coding and use of footwear as an intelligence tool, to screening and on to accredited expert.

4.4.1.1 Coding and Intelligence Research

Coding (identifying) footwear marks, using the National Footwear Reference Collection (NFRC), from crime scenes and the impressions taken from suspects can lead to crime scenes being linked to other scenes and to suspects. These links can be easily made using the National Footwear Database (NFD). The NFD not only links scenes within a force but also allows users to search adjacent forces

and even nationally. Links such as these provide the potential to identify linked scenes which may also have forensic hits such as fingerprints or DNA. Challenging a suspect with a number of linked scenes may encourage admissions.

4.4.1.2 Screening

Footwear screening can range from a simple screen to ensure that the footwear being submitted is of the same style and pattern to the crime scene marks, to a more in-depth screening to assess if the required level of evidence can be achieved.

The level of evidence achievable from a potential submission can be assessed by trained/experienced screeners, who can weed out those submissions that cannot achieve the requested result or those that would be eliminated.

Where a submission includes multiple scenes or suspects, a screener working together with the investigator can advise the best course of action and ensure the cases only with the highest potential are submitted.

Where an item is, or is likely, to be examined for other evidence types, including but not limited to:

- Biological material
- Particulates
- Fibres

the item should not be screened in house and should be sent to a suitably accredited laboratory. Once screened no further forensic examination for other evidence types may be possible.

For further detailed information refer to:
**NPIA National Footwear Database (NFD)
User Manual**

Recommendations

- Utilise the NFD to drive forensic led linking of crimes and TICs via footwear intelligence

4.5 Investigations involving Glass evidence

When a window is broken by a blow then small fragments of glass will back scatter towards the direction of the blow. The distance this glass will travel depends upon the size of the window, its height above the ground and the force of the blow. The distance is unlikely to exceed three metres.

Glass may transfer to an offenders clothing by:

- Backscatter
- Passing through the broken glass
- Handling item contaminated by the glass or
- Secondary transfer from a primary offender

Experiments have shown that most glass is lost within one hour during normal wear with a low likelihood of finding glass after four hours. Time will depend upon the extent to which the clothing will retain glass e.g. smooth training trousers versus knitted jumpers.

The laboratory will concentrate on glass found on the surface, which indicates recent contact. It is possible that glass in pockets has remained from previous incidents the offender has been involved in. Better evidential value can therefore be gained from concentrating on glass found on the surface.

Clothing should be taken as soon as possible. The shorter the time between the incident and the seizure of samples, the greater the likelihood that glass fragments will remain on items of clothing. Every broken glass object must be sampled. Submit outer clothing and any items worn under jackets which may have had a chance to come into contact with the scene. Other evidence such as sources of DNA material, footwear impressions, fibres, tool marks etc should be considered.

If matching glass is found on a suspect's clothing it can provide good support for other evidence. The extent of the support will depend upon the quantity of glass recovered and its rarity.

For this type of examination, it is necessary to submit control samples recovered from the scene along with any items recovered from suspects. It is essential that these control samples are kept separately from other exhibits recovered in order to prevent issues regarding contamination. It is important to consider the possibility of additional evidence such as the presence of footwear marks and/or bloodstains on broken glass at the scene.

Other recovered samples may include:

- Head hair combings – these should be taken prior to the removal of clothing
- Recovered glass for physical fit – where this is considered a possibility all of the glass must be submitted.
- Weapons such as baseball bats etc.
- Glass embedded in footwear

Recommendations

- To justify submitting clothing for examination it is necessary to ensure that there is a strong likelihood that glass will be recovered from the clothing and that CPS will authorise prosecution if matching glass is recovered

4.6 Investigations involving Drugs evidence

There is a legislative requirement to prove the identity of a drug for prosecution. There are, however, circumstances in which forensic examination may not be required.

Seizures of cannabis do not have to be sent for forensic examination if:

To be dealt with by caution or warning

- The case is heard at the magistrates' court, and
- The person admits possession and agrees that the drug is cannabis, and
- A suitably trained member of staff experienced in dealing with drugs identifies the substance as cannabis, and
- It is a small quantity for personal use only and
- The person pleads guilty.

Seizures of morphine, heroin, cocaine and amphetamine do not need to be sent for forensic examination if:

- The case is going to the magistrates court or sentencing is at the Crown Court, and
- It can be field tested by an approved drugs testing kit carried out by a specially trained field tester within force, and
- There has already been an admission of guilt.

4.6.1 EDIT Screening

The Evidential Drug Identification Testing (EDIT) process makes use of Home Office approved drug testing kits and a CPS approved staged reporting process to allow a case disposal decision to be made in drug possession cases without having to bail the person to return pending forensic analysis.

The use of the EDIT process has been found to simplify and speed up the criminal justice process in line with Simple Speedy Summary Justice (CJSSS) objectives. The cost savings associated with this process not only involve forensic costs but also police time.

For further detailed information refer to:
Guidance for Evidential Drug Identification Testing in Police Stations

4.6.2 Possession-only cases

All drugs are required to be submitted to be identified and quantified (either weighed, or in the case of tablets counted and liquids the volume determined).

Exceptions to this are possession cases involving heroin, amphetamine, herbal cannabis and cannabis resin **where the identity of the drug is not disputed by the defence**. In these cases a field test or, in the case of herbal cannabis/cannabis resin visual identification by a suitably trained member of staff will be sufficient.

Purity determinations and comparisons will not be required on any drug for possession only cases.

Drug-taking paraphernalia should not be examined for traces of drugs. Case-law states that there should be no prosecution of people in possession of traces of drugs.

Boyesden [1982] ac 768, [1982] 2 All ER 161, HL states:

- If the quantity of drug possessed by a person is so minute as in the light of common sense to amount to nothing, there can be no conviction for possession of a controlled drug.
- However, if the quantity of the drug is visible, tangible and measurable it will amount to something, however small, and there can be a conviction for its possession, even though the quantity is too small to be useable.

4.6.3 Possession with intent to supply cases

All drugs are required to be submitted to be identified and quantified (either weighed, or in case of tablets counted and liquids the volume determined). This includes small quantities of drugs that the suspect admits possession of for personal use where a field test would normally suffice – these possession charges will usually be heard at Crown Court alongside the PWITS (possession with intent to supply) case and formal identification is therefore required.

The requirement for purity determinations will depend on the circumstances of the case but as a general rule:

- Purity will be required for all powder drugs (e.g. heroin, cocaine, amphetamine) present in quantities greater than 500g due to sentencing guidelines.
- Purity will be required for cocaine, amphetamine, and heroin in individual packages of 14g (1/2oz) or more in weight. These drugs are usually cut and the purity of them will have a bearing on the valuation of quantities large enough to suggest that they may be cut prior to onward distribution. Consideration will be given to purity determinations of smaller quantities if there is evidence of cutting at the scene (cutting agents, mixing bowls etc).
- Purity will not be required for tablets (e.g. MDMA), crack cocaine or cannabis/cannabis resin. These

materials are difficult to cut without this being apparent to the user and as such the purity should have no bearing on the value.

- Purity determinations should routinely be requested in all instances where a comparison between batches of drugs is being authorised.

Requests for comparisons should only be authorised where relevant.

- Have the drugs been recovered from different locations/suspects?
- Is the suggestion that the drugs are from the same batch denied by the suspects?
- Will demonstrating that the drugs have a common origin support the charge of PWITS?
- If so, consideration should be given to chemical comparison of the drugs and physical comparison of their packaging.

Examination of paraphernalia for drug traces should only be considered **where it supports the PWITS charge**. Drug-taking paraphernalia (e.g. pipes, snorting tubes) should not be submitted, only drug-dealing paraphernalia (e.g. scales, mixing bowls) and then only if their use for this purpose is denied by the suspect. For example, suspected dealers are increasingly stating in interview that they are merely users and that their scales are used to ensure that they are not being cheated by their dealer. If this is the case the scales should not be submitted as the forensic scientist will not be able to refute this defence.

4.6.4 Cannabis cultivations

Laboratory examination of small numbers of plants consistent with cultivation for personal use will only be required if the suspect denies that the plants are cannabis. Visual identification by a suitably trained member of staff will suffice otherwise.

In all suspected commercial cultivations, large or small, laboratory identification and a potential yield calculation should be requested. Submissions should ideally be accompanied by a cannabis

scene examination report and photographs for the scientist's information. As a bare minimum the scientist will need to know how many plants the submitted samples are representative of.

Purity determinations (i.e. determination of THC levels) are not required for cannabis plants or for seizures of herbal cannabis/cannabis resin.

4.6.5 Fingerprint/DNA examinations

Requests for fingerprint/DNA work should be robustly challenged. Is possession of the drugs really in doubt? If for example a package of drugs has been thrown by a street dealer, is there full continuity from the suspect's hand to the recovery of the package? If so fingerprint evidence would not normally be required.

The DNA yield from drug packaging is very low. DNA should only be considered if it is suspected body fluids (e.g. saliva from concealment in the mouth) or cellular DNA from sustained contact by the suspect may be present. Such circumstances will be extremely rare.

4.7 Assault Cases involving Blood

An important issue to be addressed when considering assault cases involving blood is what is required is it identification, or evidence of attribution and distribution. This should be addressed at the scene by the appropriate crime scene examination. Problems can be encountered when, for example, a swab of blood is recovered and the fact at issue is not whose blood it is but how it got there is it present because the victim dripped blood on the item, or was it used as a weapon and the blood transferred from the assault.

It is important to ensure that all relevant background information is available prior to a laboratory submission being authorised. This may include:

- Scene details from the crime scene investigator

- Scene examination report
- Photographs
- Incident log (for timings etc.)

Further information that should also be taken into account when assessing and authorising this type of submission may include:

- IP statements
- Suspect statements
- Interview notes
- Witness statements
- Medical notes of IP's injuries
- Medical notes if suspect sustained injuries
- CCTV and other witness forms
- Log of IP's movements
- Log of suspect's movements

In cases of assault, when considering Blood Stain Pattern Analysis, it is important to assess the likelihood of finding blood if the suspect assaulted the victim. This can be established from evidence at the scene, witness statements etc. In order to address the proposition it is necessary to know both the account of the suspect as well as that of the victim.

Clothing should be taken as soon as possible, the shorter the times between the incident and the seizure of samples, the greater the likelihood that evidence will remain on the surface. All times should be recorded on the submission form. Blood-stained clothing should be dried prior to packaging. The nature of contact including the amount of contact and the amount of force used should be recorded on the submission form. Other evidence such as sources of DNA material, footwear impressions, fibres, tool marks etc should be considered.

4.7.1 Blood Screening

In order to determine the evidential value of a submission prior to forwarding to an FSP, in-force blood screening may be required. As this is considered to be a 'laboratory activity' ISO 17025 accreditation will need to be in place by November 2013 to conduct this work.

Blood screening activity can vary from the visual and microscopic examinations of items for blood to presumptive testing of items for blood prior to their submission to the force contracted FSP.

Where an item is or is likely to be examined for other evidence types, including but not limited to:

- BPA
- Other body fluids (semen and saliva)
- Particulates
- Fibres
- Damage and Physical fit
- Fingerprints

the item should not be screened in house and should be sent to a suitably accredited laboratory. Once screened no further forensic examination for other evidence types is possible.

When items that have been subject to blood screening in-force are subsequently submitted to an FSP it should be clearly indicated on the submission form that those items have undergone blood screening.

For further detailed information refer to:
NPIA Blood Screening Guidance for Forces

4.8 Investigations involving Sexual Offences

When authorising submissions, consideration should be given to the allegation made, the defence being provided by the suspect(s), and the potential evidential value of the examination being proposed. For example, even if semen matching the defendant was detected on the injured person's vaginal swabs, this would be of little use to the case if the suspect then claimed he had been given consent for sex.

Exhibits to consider for examination:

- Vaginal and endo-cervical swabs – external, high, low
- Anal swabs – external, internal
- Mouth Swabs
- Penile Swabs
- Underwear/clothing
- Sanitary wear
- Condom
- Mouth wash
- Urine
- Blood
- Victim Elimination Mouth Swab
- PACE DNA Mouth Swab
- Medical Examination Form

In cases of sexual offence, a reference DNA sample should be obtained from the victim as well as the suspect. Relevant samples will also need to be obtained from any other male who has had recent intercourse/sexual contact with the victim prior to the alleged sexual offence.

4.9 Investigations involving Firearms

4.9.1 NABIS

The National Ballistics Intelligence Service (NABIS) delivers a unique, firearms intelligence capability, using forensic science as a tool to drive its wider intelligence capabilities.

NABIS is served by five forensic laboratories, covering all the forces in the UK. The services detailed below are offered by all five laboratories; however, it should be noted that the PSNI, SPSA and Metropolitan Police Laboratories also offer additional evidential services.

All firearms used in crime, or suspected of being used in crime, should be entered by Forces on the NABIS Database and then submitted to their NABIS regional laboratory. A list of items that meet the NABIS examination criteria are available from the NABIS Laboratories.

All firearms submitted to NABIS will be examined and test fired. These test fires are then checked against previous crimes in the UK to establish if the weapon has been used on previous occasions. Similarly, cartridge cases and/or bullets from crime scenes can be compared with previous incidents in the same way. The laboratories can also recover serial numbers that have been erased from guns, and provide remand statements during office hours.

This information produced by the forensic laboratories is used by the NABIS Intelligence Cell to produce comprehensive intelligence packages on all linked incidents. In addition, the Intelligence Cell produces data detailing the outstanding guns that have been used in a force area, as well as drafting tactical and strategic threat assessments.

In any investigation where it is required to prove that a cartridge case or bullet is discharged from a weapon, a statement can be provided by NABIS. Similarly, where a statement is required detailing connections between cartridge cases and

bullets recovered at different crime scenes, or the identification of number and type of weapons used in an incident, this would also be provided by NABIS.

All other evidential services such as classification statements, scene interpretation, and range estimates will be carried out by external forensic providers.

It is vitally important that firearms, cartridge cases and bullets are submitted to NABIS at the earliest available opportunity so that forces benefit from the fast time intelligence. For this reason, items should always be submitted to NABIS prior to submitting to an external forensic provider. The only obvious exception is where the mechanical condition of the gun needs to be evaluated prior to test firing. Similarly, all trace evidence recovery work should be expedited.

For further information, or advice on forensic strategies following firearms incidents, please contact your NABIS Laboratory.

4.9.2 Examination of Firearms

Exhibits to consider for submission include:

- Firearms
- Revolvers
- Pistols
- Replica Firearms
- Ammunition
- Bullets
- Wadding
- Shot
- CS/Pepper Spray

Firearms and associated ammunition will generally need to be submitted in order to determine their classification within firearms legislation.

Depending on the circumstances the item was recovered in it may be necessary to consider DNA and/or fingerprint examination of the item in order to link it back to a potential suspect.

4.10 Investigations involving Toxicology Evidence

Toxicology deals with the analysis of biological samples for alcohol, drugs of abuse, prescribed/ medicinal drugs, poisons and volatile substances/ solvents.

It is important to outline clearly the purpose of toxicology examinations and supply all the relevant background information that may be required by the scientist at the time of submission. This may include:

- Medical information along with any symptoms shown
- Information regarding items found at the scene
- Details of known prescription medicines
- Drugs administered in hospital

For serious offences such as Murder, Manslaughter, Rape, GBH it may be necessary to determine whether or not the victim and/or suspect was under the influence of alcohol, drugs or other substances at the time of the incident.

Blood and urine samples should be taken as soon as possible after the incident occurred. If samples are taken too long after the incident laboratory examination becomes futile due to the body processes which will break down (metabolise) any relevant drugs or poisons present. Urine can retain evidence of previous alcohol/drug use for longer periods than blood specimens.

Exhibits to consider for submission include:

- Blood for alcohol and drugs
- Urine for alcohol and drugs
- Hair in drugs facilitated sexual assault cases

Police forms MG/DD A to E should be completed for cases under the Road Traffic Act. These include:

- Driving with an alcohol level over the prescribed limit
- Alcohol technical defence cases
- Driving whilst unfit to do so through drink or drugs

In alcohol technical defence cases other exhibits to submit may include:

- Drinks
- Glasses
- Cans
- Bottles

4.11 Investigations involving Questioned Documents

Documents to consider for submission include:

- Cheques
- Notebooks
- Letters
- Application forms
- Wills
- Demand notes
- Credit cards
- Obliterated writing in diaries
- MOT certificates
- Insurance documents
- Typewritten or printed documents
- Photocopied documents
- Anonymous letters
- Paper
- Police custody forms completed by suspect

It is necessary for this type of examination to submit the original documents wherever possible as photocopies may limit the examination, especially if signatures are to be examined.

Specimens can be of two types:

- Course of business writing – documents known to have been written by the suspect
- Request samples – writings taken specifically for the purpose of the examination, ideally a minimum of ten

When obtaining request samples it is necessary to ensure that 'like for like' samples are being taken. If the questioned document contains only block capitals then so should the request samples. Request samples should be separated out into free style,

completed naturally by the suspect/witness and dictated where the investigator has had to inform the person of the style of writing, for example, numerals over written and block capitals over lower case.

When advising officers on handwritten examination submissions the following should be considered:

- When requesting samples dictate the text required – this will negate a possible defence by the suspect that they were merely 'copying' what they had been shown
- Ask the suspect to write in their normal style with a well-used ball point pen
- The suspect should date and sign each page of samples
- Remove previous samples from the suspects view – if they are trying to disguise their writing, by removing the sample each time, it is more likely the suspect will revert to their natural hand.

It is important that in some cases reference samples are taken from witnesses and complainants as a possible defence may be that the person has forgotten they completed the document a handwriting expert may be able to rule out a person's involvement easier than including a suspect and this may allow the weighting of the evidence to change.

In cases where altered documents are being submitted again it is necessary to submit the originals. This should be prior to any fingerprint examination involving the use of reagents taking place. If possible also submitting a genuinely issued document may assist in the document examination.

Other examination requests may include:

- Typewritten or printed documents
- Photocopied documents
- Counterfeit documents and printing apparatus
- Dry-transfer or rub-down lettering
- Documents for indented impression examination
- Comparison of paper

4.12 Arson Investigation

Exhibits to consider for submission include:

- Hydrocarbon liquids such as petrol, white spirit, kerosene, diesel etc.
- Non-hydrocarbon liquids such as methylated spirits, surgical spirit, acetone
- Clothing
- Items recovered from the scene of a fire
- Accelerant samples recovered at a fire scene
- Petrol bomb remains
- Burnt paper
- Electrical item
- Photographs such as scene, exhibit location, scorch damage to suspect

Items of clothing can be examined for the presence of flammable liquids and for any scorching or flash-burns. Items to be submitted for accelerant analysis should be packaged in nylon bags with a swan neck seal. Any items not appropriately packaged should not be submitted for examination as the integrity of the exhibit has been compromised.

Items that are suspected of containing fire accelerants should not be dried out prior to packaging.

Hand swabs should not be submitted for traces of accelerant as there is currently no effective way of recovering flammable liquid residues from skin.

4.13 Investigations involving Fibres

The transfer of fibres is dependent on a number of factors. These include:

- The degree of contact that took place
- The ability of the item to shed fibres
- Their ability to retain these transferred fibres

When considering this type of submission it is best if the donor garment is a good shedder and has characteristic fibres, either in colour or fibre type. A

finely woven material like cotton is unlikely to shed fibres readily however, a knitted sweater is likely to be a good shedder.

The recipient garment needs to have good retentive properties. Generally transferred fibres will be lost from a garment, such as a cotton shirt, during normal wear very quickly. A garment which has better retentive properties, such as a knitted sweater, may take several hours for the fibres to be lost.

It is necessary for this type of examination to submit:

- Recovered samples – items on to which fibres may have been transferred
- Control samples – items which are potential sources of fibres

Exhibits to consider for submission may include:

- Garments
- Weapons
- Seats
- Bodies
- Carpets
- Upholstery
- Rope

The value of fibre evidence is affected by a number of issues but has the possibility to provide powerful evidence if a number and variety of different fibre types and colours are involved.

4.14 Staged Reporting

A staged approach to examinations should be considered when appropriate. Staged reporting can be used for fingerprint identification evidence, DNA evidence, footwear evidence, Evidential Drug Identification Testing.

The development of a staged reporting process incorporating first stage reports ensures sufficient information is provided upon which to make charging decisions further evaluative reports can then be provided as required.

Full forensic identification evidence is only provided in cases where evidence of identity is challenged. Considerable cost and time savings are made without harming the integrity of individual cases.

In any case in which material evidence against a person consists of a DNA or fingerprint or other forensic analysis, confirmation of the match report, accompanied by other supporting evidence in the case, or positive fingerprint identification will suffice for the purposes of making a charging decision and for the magistrates' court initial hearing.

Where a controlled substance has been identified through the use of a drug testing kit or in the case of cannabis by a suitably trained member of staff, only where the identification is challenged will further scientific evidence be obtained after charge.

For further detailed information refer to:
4th Edition of The Directors Guidance on Charging 2011

4.14.1 Streamlined Forensic Reporting

Streamlined Forensic Reporting (SFR) is a way of delivering proportional forensic evidence to the Court. It is a two staged approach managed in accordance with the Criminal Procedures Rules 2010, and means only undergoing DNA analysis in areas where there is an issue. SFR allows for a short report to be provided by the relevant forensic service giving the initial key findings. This report is sufficient for charging purposes and court case management hearings. If any areas of dispute are identified and, only if necessary, a second stage and more detailed forensic report can be requested and produced. Second stage full evidential reporting is only sought in fully contested cases where the issue is the DNA or other forensic evidence.

4.15 Case File Progression

There are three types of prosecution file:

- Expedited
- Remand
- Full

Expedited files will generally be submitted in straightforward guilty plea cases.

Remand files include (for both remands in custody and on bail) the following:

- Other guilty plea cases
- Not guilty cases
- Plea not known cases
- Indictable only cases
- Special category cases

A full file is required after the first hearing in charge cases and for the first hearing in proceedings initiated by summons where:

- Requested by the CPS
- The defendant has been charged with an indictable only offence
- The defendant has been charged with a special category offence
- It is anticipated that the defendant will plead not guilty
- The defendant's plea is not known

4.15.1 Pre-charge Bail

Following a person's arrest for an offence and their detention in a custody suite, police have very strict time-scales within which they need to gather sufficient evidence to allow a charging decision to be made. These time-scales are generally referred to as the "PACE clock".

If any part of the police investigation is likely to take some considerable time, the detainee may be released from custody on pre-charge police bail. They are given an undertaking to return to the police station at an agreed time and date whilst the investigation continues. Once released on bail,

the PACE clock is stopped, effectively suspending the time that the detainee is allowed to be kept in custody and it is re-started on their return to the custody suite in answer to their bail.

One of the more common reasons for granting pre-charge bail in an investigation is to allow the police to submit an item or items for appropriate forensic analysis. Depending on the analysis involved this could take days or weeks.

It is therefore imperative that the agreed standard laboratory turnaround times for the different analytical processes are known and understood by investigators and custody personnel, particularly the Custody Sergeant. Similarly, Submissions Unit staff should be made aware by investigators of any dates set for the detainee(s) to return on bail. This should greatly reduce the possibility of a detainee being released on pre-charge bail “pending forensic analysis” and returning prematurely with the investigators still not in receipt of the laboratory report. This eventuality would cause a preventable and unnecessary waste of time, resources and money and would then necessitate the detainee being re-bailed to return in the future on a date by which the laboratory result is known.

Recommendations

- It is important to ensure that all staff are aware of CPS timescales and request this in writing where necessary

4.15.2 Court Proceedings

Cases will either be tried in the Crown Court or in the magistrates’ court.

Indictable only offences may only be tried in the Crown Court. Either way offences may be tried either in the magistrates’ court (summary trial) or in the Crown Court (trial on indictment). In general, summary offences may only be dealt with in the magistrates’ court.

Crown Court is a court where criminal cases are dealt with by a judge and a jury of twelve members of the public. The cases heard in the Crown Court are those likely to attract higher sentences (for example, rape, grievous bodily harm and murder). The Crown Court also deals with appeals for cases dealt with by the magistrates’ and youth courts.

Magistrates’ court is a court where criminal cases are dealt with by magistrates or district judges. Magistrates’ courts tend to deal with cases that attract a lower sentence such as common assault and criminal damage.

Committal proceedings are required to ‘commit’ either way cases to the Crown Court where there is no indictable only offence to which they are ‘related’ and where following a not guilty (or no) indication, at the mode of trial considerations:

- The court does not permit summary trial and decides that the case should be committed to the Crown Court, or
- The defendant, having been offered a summary hearing, elects trial in the Crown Court, or
- The defendant is a youth charged with an offence to which Section 24 Magistrates’ Courts Act 1980 applies and the court decides that the case should be tried in the Crown Court.

Section 5

Packaging and Handling Exhibits

- 5.1 Continuity
- 5.2 Health and Safety
- 5.3 Contamination
- 5.4 Storage
- 5.5 Packaging and Labelling
- 5.6 Retention and Destruction of Exhibits

5.1 Continuity

In order to maintain continuity and integrity of samples it is important that they are packaged and labelled prior to leaving the scene. It is then necessary to ensure samples are stored and retained in appropriate conditions until required and that their location is suitably recorded.

Exhibits produced must be allocated a reference number and an exhibit label should be signed at the time.

It is essential that continuity can be shown for all exhibits recovered. Any person who handles an exhibit should sign and date the label and make reference to it in their statement. Without such proof any evidence recovered during an investigation may subsequently become inadmissible in court.

Recommendations

- Exhibit label should match submissions paperwork exactly

5.2 Health and Safety

The handling of many forensic samples may constitute a health hazard. Under the Health and Safety at Work Act (1974) forces have a duty to protect employees and others who may be affected by its acts and omissions against foreseeable risks to their health and safety.

The responsibility for the submission of hazardous materials in a safe condition to an FSP lies with forces. Suitable procedures should be in place for the obtaining, handling and transportation of materials.

Hazardous materials could include the following:

- All liquid blood and body fluid samples, including toxicological samples
- Any item stained with blood or other body fluid
- Items infested with parasites
- Hazardous chemicals
- Explosives, explosive devices, incendiary materials and pyrotechnics
- Firearms and ammunition
- Any item with a sharp edge capable of causing penetration or injury.

5.3 Contamination

It is important for forensic submissions staff to ensure that contact trace materials recovered from any crime scene are handled in a manner that prevents contamination or degradation. The provision of demonstrably sealed and labelled bags is essential.

Current DNA profiling techniques are highly sensitive and therefore it is important that risks of possible contamination of exhibits are avoided at all times. If submissions staff are made aware that contamination may have occurred prior to submission, as it is likely that any contamination will be detected, consideration should be given as to the suitability of that item for submission with the decision not to submit the sample possibly being made.

Good practice dictates that all contact between control materials and clothing from individual suspects and victims must be avoided.

Precautions to minimise the risk of contamination include:

- Avoid situations where the same officer takes possession of clothing from a suspect and victim in the same case.
- All exhibits should be packaged and sealed as soon as they are taken.
- Use separate sacks for control samples and multiple suspects' and victim's clothing.

Care must be taken when handling documents which are to be submitted for examination to avoid leaving unwanted indented impressions or other marks.

5.4 Storage

The appropriate storage of exhibits by forensic submissions staff is necessary in order to maintain the forensic integrity of exhibits at all times.

The following table shows suggested packaging and storage options for numerous evidence types:

| Evidence Type | Packaging | Storage |
|---|---|-------------|
| Accelerants | Must be stored in a nylon bag, tied and sealed at the top with a swan-neck Bakelite containers for decanted fluids | Dry storage |
| Blood (preserved for alcohol, carbon monoxide, volatiles and drugs) | Container with fluoride preservative and anticoagulant e.g. septum sealed RTA type vial. | Refrigerate |
| Blood (preserved for DNA) | Plastic monovette, 1 fl.oz. Sterilin or EDTA vial | Refrigerate |
| Blood (recovered from a scene) | Swab, scrape or collect as appropriate | Freeze |
| Cannabis leaves and/or plants | Brown paper bag | Dry storage |
| Cigarette Ends | Suitable sterile rigid container | Dry storage |
| Clothing | Dry clothing must be placed in paper bags to allow for ventilation. Plastic or other material which would retain moisture should not be used. | Dry storage |
| Condoms | Put into rigid plastic container. | |
| Clip or seal to secure contents. | Freeze | |
| Dry items e.g. clothing, bedding | Suitably sized brown paper bag | Dry storage |
| Drinking vessels | Suitable sterile container, generally sealed polythene bag | Freeze |
| Fibre Tapings | Sealed individually in polythene bags | Dry storage |
| Foodstuffs e.g. chewing gum | Store in a sterile plastic container | Freeze |
| Glass Controls | Sturdy cardboard box, sealed at all edges. Additional protection can be gained from placing inside a sealed polythene bag | Dry storage |
| Other Drugs Items | Tamper-evident bags should be used for most items | Dry storage |
| Swabs | Original sterile swab tube | Freeze |
| Urine (preserved for alcohol and drugs) | Container with fluoride preservative e.g. septum sealed RTA type vial | Refrigerate |

Any damp or wet items should be allowed to air dry, in a suitable safe environment. If this is not possible, they should be stored in a polythene bag and frozen immediately to prevent items going mouldy

Recommendations

- Avoid the storing of exhibits for prolonged periods

5.5 Packaging and Labelling

It is important that all items being sent to an FSP for further examination are suitably packaged and labelled. This is essential for maintaining the integrity of forensic evidence and minimising the possibility of cross-contamination of evidence.

On receipt, Forensic Submissions quality control checks can be utilised to ensure that only appropriately packaged exhibits are submitted.

All packaging should be sealed securely, using adhesive tape on all edges; staples should never be used to seal bags.

To ensure safe submission of any firearm, it will be necessary for each weapon to have been checked by an authorised firearms user and to be accompanied by an appropriate safety clearance certificate. Firearms are usually submitted to the laboratory directly and not via your normal courier run.

Metal-ended weapons tubes should be used for the packaging of knives and other sharps. The fitted metal end caps help to protect the user from puncture wounds when closing the tube down too tightly.

5.6 Retention and Destruction of Exhibits

Where a submission has taken place to an FSP, appropriate storage, retention and destruction of the material needs to be in line with the relevant legislation.

This legislation includes:

- Criminal Procedure and Investigations Act 1996 (CPIA)
- Police and Criminal Evidence Act 1984 (PACE)
- Human Tissue Act 2004

For further detailed information refer to:
NPIA Exhibit Retention Guidance

Section 6

Roles and Responsibilities

There are a number of role definitions and responsibilities associated with forensic submissions processes. These include:

Forensic Submissions – Responsible for the authorisation of forensic submissions (in some forces this decision making responsibility may be made elsewhere, for example, CSIs or Divisional Police Officers).

Officer in the Case (OIC) – The officer in the case is responsible for jointly building the prosecution file in consultation with the Crown Prosecution Service

Senior Investigating Officer (SIO) – The officer in major investigations who oversees the investigation.

Scientific Support Manager (SSM) – Responsible for the management of scientific support resources.

Crime Scene Manager (CSM) – Responsible for the provision of crime scene management, in consultation with the SIO advises whether a forensic scientist is required at a scene and whether specialist skills are required.

Scenes of Crime Officer (SOCO) - Responsible for the search for and recovery of fingerprints and palm marks at scenes of crime; the assessment of crime scenes, and the search for and recovery of physical evidence using their professional judgement (in some forces this role may have an alternative name, for example, Crime Scene Investigator (CSI), Crime Scene Examiner (CSE), Forensic Investigator (FI). Whatever the job title the roles and responsibilities are effectively the same throughout forces)

Exhibits Officer – Responsible for the collation and security of exhibits, and the submission of exhibits for forensic examination.

Duty Prosecutor – Any prosecutor deployed to give pre-charge advice whether by area or CPS direct.

Forensic Service Provider (FSP) – The agency or organisation providing forensic services.

Police Community Support Officer (PCSO) –

Works to complement and support regular police officers by addressing some of the tasks that do not require the experience or powers held by police officers.

UK Police Rank structure

- Police Constable
- Sergeant
- Inspector
- Chief Inspector
- Superintendent
- Chief Superintendent
- Assistant Chief Constable
- Deputy Chief Constable
- Chief Constable

Within CID (Criminal Investigation Department) the prefix 'Detective' is applied in the ranks from constable to chief superintendent.

The City of London Police has a slightly different rank structure above the rank of Chief Superintendent. Above this rank are:

- Commander
- Assistant Commissioner
- Commissioner

The Metropolitan Police Service also has a slightly different rank structure above the rank of Chief Superintendent. Above this rank are:

- Commander
- Deputy Assistant Commissioner
- Assistant Commissioner
- Deputy Commissioner
- Commissioner

Section 7

Documentation

7.1 Casework Submissions Paperwork

7.2 Statements

7.1 Casework Submissions Paperwork

All cases that are submitted should have the following information provided, in line with the National Forensic Framework:

- Authorised Submission Documentation (e.g. MG21) or other relevant paperwork outlining the circumstances and requirements of the investigation
- The Home Office offence code
- Basic strategy details
- Details of the Lot that the case is being submitted under
- Details of the exhibits that are authorised for work along with the product service codes that are authorised
- Details of any key dates that are expected to be applied to the case
- Details of the required reported outcome, i.e. report, abbreviated statement, Forensic Streamlined Report, full evaluative statement
- Details of any other submissions made in relation to the case. For example, where an examination is required under the DNA Lot, it is necessary to provide details of any relevant PACE barcode reference and the details of the supplier that the PACE sample was submitted to

It is important that the scientist has as full an understanding of the case and the circumstances of the incident as possible. Scientific test results are objective but have no significance in isolation from the circumstances of the case.

Recommendations

As well as supplying the scientist with the appropriate authorised submission documentation it is also necessary to include copies of other relevant documents for example witness statements, medical examination form etc. pertinent to that investigation

7.2 Statements

Upon completion of a scientific examination it is likely that a statement will be completed by the scientist who will consider the probability of the evidence given each of the two propositions that have been considered. The weight of evidence is communicated within this statement with the scientist concluding that the evidence supports a given proposition expressing the value of these findings using the following scale:

- Neutral/inconclusive
- Limited
- Moderate
- Moderately strong
- Strong
- Very strong
- Extremely strong
- Conclusive

A full, written, evaluative witness statement detailing outcomes in a format which is acceptable to the criminal justice process will be produced when requested.

Recommendations

Increase knowledge by reading statements and establishing the investigative results from submission cases authorised

Section 8

Communications

- 8.1 Forensic Service Providers
- 8.2 Investigation Team
- 8.3 Crown Prosecution Service

8.1 Forensic Service Providers

A force's relationship with Forensic Service Providers should take into account force needs for commercial accountability and cost-management. Good communication between all parties is essential if forces are to be cost-effective.

The decision to call a forensic scientist to the scene should always be based on practical circumstances, such as complexity, potential for physical evidence, or need for immediate advice. The gravity of the offence is not the prime consideration, although it will inevitably be a major factor.

Recommendations

Establish protocols between Force and Forensic Service Providers

8.2 Investigation Team

The investigative process, from the initial report of a crime to its final outcome, involves teamwork between police officers, scientific support personnel and forensic scientists.

If activities can be focused to specific areas and directed towards the aim of an investigation or enquiry, then cost-effectiveness and the overall probative value of the evidence produced can be increased. The earlier that considered decisions not to attend, not to collect evidence or not to proceed with an active investigation can be made, then the greater will be the availability of overall resources for more promising cases.

8.3 Crown Prosecution Service

The Crown Prosecution Service (CPS) prosecutes criminal cases investigated by the police in England and Wales. In order to perform this role, the CPS:

- Advises the police on cases for possible prosecution
- Reviews cases submitted by the police for prosecution
- Where the decision is to prosecute, determines the charge in the more serious and complex cases
- Prepares cases for court
- Presents those cases at court

By aiming to work together in partnership with CPS forces will be able to establish standard operating arrangements for the exchange of good quality and timely information. The principals for this are in place through the National Protocol for the supply of forensic science services to the Police and the Crown Prosecution Service.

There is a common misunderstanding that the cost of any forensic work post charge is borne by the CPS. The work of an expert usually falls into two categories:

- Tasks completed as part of the investigation
- Attendance at court to give evidence

During the investigation of a case, work commissioned by the police for an expert to undertake scientific tests and to produce a report on their findings will be paid for by the police from the relevant budget.

The cost of attendance at court to give evidence based on the report falls on the CPS to pay.

At times during a case, prosecuting counsel may ask that an expert witness produce a further report. If this report seeks to clarify or expand on previous work undertaken this can be considered to be part of the presentation of the case and as such the costs

of this further work would be borne by CPS. If the report is required on a previously unexamined item or a new test is required to be conducted then this forms part of the investigation and as such the costs would fall on the police to pay.

Recommendations

Establish a single point of contact (SPOC) locally with CPS

For further detailed information refer to:
CPS Protocol for the supply of forensic science services to the Police and the Crown Prosecution Service

Section 9

Financial Awareness

- 9.1 Budget Setting
- 9.2 Monitoring
- 9.3 Forecasting
- 9.4 Invoicing
- 9.5 Trends
- 9.6 Account Management

9.1 Budget Setting

A budget tells you where you are going and how you are going to get there it is both an operational and a financial plan. Most organisations prepare budgets once every 12 months. The force's budget will be made up from a series of smaller budgets prepared by divisions or departments.

A budget is a management tool for decision making which should be consulted constantly and involves three basic steps:

- construct the budget
- co-ordinate the budget
- control the budget

Budgets are usually set within force's finance departments, agreed by the relevant Police Authority, and then filtered down to the relevant division or department management. Through managers involving the staff in the budgeting process from the beginning, it is possible to increase motivation and help boost morale if stricter financial constraints become necessary.

It can also be used as a form of delegation; by giving people the discretion to make their own decisions to achieve agreed goals, then performance against budget can be used as a method of assessment.

Having set the budget it is then necessary to measure actual performance against this budget. If forensic submissions departments consider their operations in terms of running a business this should assist in keeping track of finances. This in turn should enable any deviation from the original budget to be 'positive' rather than 'negative'.

Financial management within the public sector needs to address value for money.

Training opportunities

The Finance Skills for All learning programme can be found on the Civil Service Learning portal.

9.2 Monitoring

There are three critical steps to controlling and monitoring a budget once it has been set.

Firstly it is necessary to review. In the case of a forensic submissions department this will involve checking the delivery note once it is received from the Forensic Service Provider to ensure that you have been charged correctly for the work that was requested. Subsequently when statements are received it is then necessary to check that this accurately reflects the submission authorisation request. If any further work is required any additional authorisation requests should be recorded in the case file.

If at this stage a variance to the budget is discovered it is necessary to consider why this has occurred, for example, Is it an error in charging by the FSP?; Can it be attributed to seasonal fluctuations in crime?

It is then important to react appropriately. The manager concerned clearly needs to know about it and report it to other appropriate personnel. It is not good management to conceal overspends within the budget as it will have consequences for others in the organisation.

If an overspend is discovered it may then be necessary to revise working practices within the department in order to get the budget back onto its original course. Another course of action may be to review and revise the original budget commitments to take into account the new facts.

Recommendations

- Request estimates from Forensic Service Providers for every casework submission
- Use an additional budgetary authorisation sheet for casework submissions and prescriptively authorise budgetary spend
- Input financial data onto a fit-for-purpose IT case management system
- Update staff regularly as to current financial spend

9.3 Forecasting

In order to forecast what forensic services will be required, each force will need to consider its own crime profile. It is important to not only consider the quantities of products required but also the mix between different products and their relative costs.

By authorising expenditure against pre-determined budgets and detailed forecasts it is possible to ensure that proposed expenditure is in line with aims and policy and that there are sufficient funds available within the budget to finance it.

In order to operate effectively, forensic submissions departments need to not only address the financial aspect of authorising a submission but balance this alongside the need to assess each case on its merits.

In order to maintain control a number of internal measures can be put in place:

- Supervisory – these include basic checks such as ‘are things being done in the right way at the right time?’
- Authorisation – is appropriate authority obtained at the right time? For example, are spending limits for incurring expenditure clearly defined?

9.4 Invoicing

It is necessary for forensic submissions departments to have processes in place for approving payment of invoices received from Forensic Service Providers with their relevant finance department. This should be based on an employee's confirmation that the goods or services have been received.

Recommendations

- Check and validate every invoice to every case

9.5 Trends

The whole budgeting process creates a circular loop which is important for two reasons. Firstly at the end of the year, this year's actual performance will be an important guide for setting next year's budget plan. Secondly throughout the year the constant process of feedback and possible need to revise budgets during the course of the year helps form a successful organisation.

9.6 Account Management

Effective account management leads to a good customer relationship between Forensic Service Providers and Police forces. By holding regular account meetings it is possible to review performance, often by suppliers' production of management information and deal with any problems that may have occurred during that period.

Section 10

Abbreviations, Acronyms & Terminology

10 ABBREVIATIONS, ACRONYMS & TERMINOLOGY

| | |
|----------------------|---|
| ABH | Actual Bodily Harm |
| ACPO | Association of Chief Police Officers |
| Allele | A particular gene can have a number of forms, which differ in the base sequence of the DNA; each of these is an allele |
| ANPR | Automatic Number Plate Recognition |
| ASBO | Anti-social Behaviour Order |
| A-SNPs | Autosomal Single Nucleotide Polymorphisms |
| BPA | Blood Pattern Analysis - the interpretation of bloodstain patterns present at violent crime scenes to help reconstruct the events that took place during the commission of a crime (also referred to as Blood Stain Pattern Analysis) |
| CBRN | Chemical, Biological, Radioactive and Nuclear |
| CCTV | Closed Circuit Television |
| CID | Criminal Investigation Department |
| Contamination | The introduction of unwanted pollutants. In the context of DNA profiling, this refers to contamination with DNA from a different source to that from which the original sample came |

| | | | |
|-------------------------------|---|----------------------------|---|
| Continuity of Evidence | The provision of a complete documented account of the progress of an item of evidence since its recovery from a crime scene. If this cannot be adequately demonstrated, the evidence in question may be ruled inadmissible in court | FIB | Force Intelligence Bureau |
| CPS | Crown Prosecution Service | Forensic Entomology | The study of insects as applied to legal disputes |
| CRB | Criminal Records Bureau | FSP | Forensic Service Provider |
| Crime Stain | A sample taken from a crime scene or object with a possible sample upon it | GBH | Grievous Bodily Harm |
| CRO | Criminal Records Office | GPMS | Government Protected Marking Scheme |
| CSS | Crime Scene Stain | HBV | Honour Based Violence |
| Degradation | The breakdown of DNA into smaller fragments by physical or chemical means | HMIC | Her Majesty's Inspector of Constabulary |
| Denature | The separation of the DNA double strands into single stranded DNA, this can be done naturally by a cell, or by applying heat or chemicals | HOLMES | Home Office Large Major Enquiry System |
| DFSA | Drug Facilitated Sexual Assault | ID | Identification |
| Discriminating Power | The potential power of a system to distinguish between individuals at a locus | IP | Injured Party |
| DNA | Deoxyribonucleic Acid - the primary genetic material of all cells | IPCC | Independent Police Complaints Commission |
| DNFPA | Deemed No Further Police Action | Locus | This is the name given to an area of DNA that is analysed when generating a DNA profile (several Locus are called Loci) |
| DP | Detained Person (also referred to as a detainee) | LTDNA | Low Template DNA |
| EDIT | Evidential Drug Identification Testing | MISPER | Missing Person |
| | | MO | Modus operandi |
| | | MOPI | Management of Police Information |
| | | NABIS | National Ballistics Intelligence Service |
| | | NAFIS | National Automated Fingerprint Identification System |

| | | | |
|--------------|---|---------------|---|
| NDNAD | National DNA Database - it contains DNA profiles yielded from person samples and crime scene stains | SGM | Second Generation Multiplex - a DNA profiling system which looks at seven areas (six areas plus the sex indicator area) to give a DNA profile |
| NFD | National Footwear Database - a web based system that utilises the NFRC to develop footwear intelligence across individual forces, adjacent forces and nationally | SGM+ | Second Generation Multiplex Plus - a DNA profiling system which looks at eleven areas (ten areas plus the sex indicator area) to give a DNA profile |
| NFRC | National Footwear Reference Collection - a web based footwear 'catalogue' available to all forces. The collection has in excess of 22,000 different footwear patterns | SPOC | Single Point of Contact |
| PABS | Physiologically Altered Blood Stains | STR | Short Tandem Repeat - lengths of DNA comprising a number of short sequences which are repeated one after the other, this forms the basis of DNA profiling techniques used today |
| PACE | Police and Criminal Evidence | TFMV | Theft from Motor Vehicle |
| PCR | Polymerase Chain Reaction - a process that yields millions of copies of specific regions of DNA, very specific areas of the sample DNA is targeted and copied | TIC | Taken into Consideration |
| PCSO | Police Community Support Officer | TOMV | Theft of Motor Vehicle |
| PED | Police Elimination Database | TWOC | Taken Without Owner's Consent |
| PNC | Police National Computer | URN | Unique Reference Number |
| POLKA | Police Online Knowledge Area | VIPER | Video Identification Parade Electronic Recording |
| PWITS | Possession (of drugs) with intent to supply | VPDD | Vulnerable Persons DNA Database |
| ROTI | Record of Taped Interview | VRM | Vehicle Registration Mark |
| ROVI | Record of Video Interview | Y-SNPs | Y-chromosome Single Nucleotide Polymorphisms |
| SARC | Sexual Assault Referral Centre | | |
| SFR | Streamlined Forensic Reporting | | |

APPENDIX A

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APPENDIX B

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