CBQ
Criminal Bar Quarterly
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EXPERT EVIDENCE

- Forensic Ballistics Change & Challenge
- Promoting Reliability in Expert Evidence?
- Forensic DNA profiling
- Expert Evidence: The Rules
- CCTV in the criminal justice system

PLUS: THE SENTENCING OF MOTHERS AND THE RIGHTS OF THE CHILD

THE CRIMINAL BAR ASSOCIATION

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Editor's viewpoint

By Alice Kemp, Editor of CBQ

It has been interesting to chart, over the past two or three decades, the rise in popular conscious of the role of expert, particularly scientific, evidence. From the faltering days of the OJ Simpson trial, during which the prosecution was faced with the mammoth task of explaining the concept, relevance and interpretation of DNA evidence (a then fledgling forensic science) to a completely uncomprehending jury. Followed by the rise of CSI-esque television programming, promoting an unrealistic view of the speed, reliability and availability of forensic scientific techniques. Finally arriving at a neo-scepticism of the scientific, brought about by the discrediting of a number of forensic techniques, forensic hair analysis being one, the increasing popularity of true crimes shows, and the rise of scientific scepticism in society, more popularly embodied by the anti-vaccination and climate change denial blocs.

The more optimistic may note that this penduluming of understanding, in part, replicates a society moving through the stages of the Dunning-Kruger effect, during which the populace has become increasingly more familiar with, and cognisant of, the type of scientific terminology once reserved for the laboratory and, more significantly, what is currently not possible with expert evidence.

More significantly for the jobbing barrister, these nuances in pop-culture and popular understanding present unique challenges in the use of expert evidence. Gone are the days when the entire scientific literature underlying DNA needed to be rehearsed before a jury in order to provide context to a likelihood ratio. Now the challenge lies in confining the jury's mind to solely and strictly that which the forensic evidence tends to prove or disprove; a kind of semi-psychic level of prediction usually associated with crystal ball gazing. Or the Appellate courts.

Another challenge has become, in addition to the pressure to keep abreast with the progress and furtherance of good science, keeping up with what has been discredited and the wild hinterland where good science meets bad practice. Cross contamination issues have been on the cross-examination radar for many years, but increasing sensitivity of equipment and testing methods mean that the risks of injustice from cross contamination and laboratory error, once seen the last stand of the guilty defendant, have become the modern hallmark of the falsely accused.

Expert evidence performs an important function in assisting a finder of fact to determine the questions posed to them, leading to the ultimate question of guilty or not guilty. But, as with any other fact, it is the interpretation and context that enable the fact finder to make use of the evidence. So it is on these twin pillars of expert evidence that we must focus in order to ensure that the conclusions to be reached can be supported. And the best resource? The expert.

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The Price of Everything, The Value of Nothing

By Chris Henley QC, CBA Chair

One of the fundamental cornerstones of a democratic society, underpinning the rule of law, ensuring equal and fair treatment for all, with transparent, reasoned, reviewable decision-making, is a high quality Criminal Justice System. Society's cohesion and wellbeing requires its people to have confidence in the reliability of criminal trial outcomes, following rigorous, open-minded investigation. You don't have to travel far to see how a loss of confidence in the integrity of due criminal process, has a ricochet effect across all state institutions. If a state does not actively promote equality before the law, does not treat all its people with equal respect, particularly the most marginalised, the corrosive effect generally is far, deep and wide.

We have long been proud of the impartiality and quality of our Judiciary, and of course still can be. But Judges can only deal with what ends up in front of them, and to a very large extent can only deliver the justice we need if what has gone before, in terms of the investigation, charging decisions, legal advice, preparation, and how the respective positions are presented at trial, are all of the highest quality. The same of course is true of juries. It is a national tragedy, an accurate description, that the soul of our system is being sapped and undermined by huge underfunding. So many citizens are being increasingly poorly served, by a system that simply lacks the capacity to deliver, in major ways but also in more modest ways. Poorer communities suffer the most, but it impacts on all of us.

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You do have to wonder how much longer can we go on like this. How much further will things be allowed to deteriorate. Why does a properly functioning Criminal Justice System seem politically to matter so little? No area of public spending has been so comprehensively hammered as the Justice budget. Cuts of 51% are currently scheduled to the MOJ's budget by 2023, compared to 2010. The prison population remains stubbornly high, and so devours a huge proportion of this budget, leaving less and less for everything else.

Take a wander anywhere across the legal landscape and you will find collapse within every contour, the view from every vantage point is miserable. The recently departed Prisons Minister, Rory Stewart, a cerebral and sincere man, had promised to resign after a year if violence and drugs in prisons had not improved. Violence, self-harm, staff assaults, the easy availability of drugs have all got worse, since he made his pledge. His recent promotion has allowed him to swerve making good on that promise.

I recently spent the first May Bank Holiday weekend in beautiful Berwick-upon-Tweed. Berwick is one of the many places which have lost their police cells; so a threadbare local police presence is faced with a 63 mile trip to Newcastle if any arrests are made (a roundtrip of 126 miles). The consequences are inevitable and obvious. Bristol and Bath also have no operational police cells. And parts of Wales are suffering acute anti-social

consequences of the retreat, if not disbandment, of effective local policing. It's all remote decision making driven by parsimony, the price, and nothing to do with what is right, the value.

The CPS and SFO are denied the necessary resources and therefore lack the capacity to pursue cases with sufficient confidence, rigour and speed to deliver justice on behalf of the communities they exist to serve. Serious crime is rising significantly as the number of prosecutions reaching court declines dramatically year after year. Allegations of rape provide a good example of this; reports have risen by 16% whilst prosecutions have fallen by 23%. We then have the hoo-ha about complainants' being required to sign clumsily drafted forms about access to their phones, which looks uncomfortably like back-covering rather than intelligent, respectful solutions on a case by case basis. When phones are seized they often lie unexamined for 6 months or more, the forms largely theoretical, and further damage is done to public confidence.

> *Chris Grayling's doggedly incompetent and nihilist legacy continues to cost the Ministry of Justice huge sums. The Public Accounts Committee has calculated that his 'irredeemably flawed' reforms to the delivery of probation services will cost an extra £467 million to address the failings.*

Chris Grayling's doggedly incompetent and nihilist legacy continues to cost the Ministry of Justice huge sums. The Public Accounts Committee has calculated that his 'irredeemably flawed' reforms to the delivery of probation services will cost an extra £467 million to address the failings. He ignored the advice which warned him. Reoffending rates have soared as effective supervision has left the room, or perhaps it stayed in the room. The cost will be borne by damaging other areas of departmental spend. The loss of judicial confidence in community orders, must be a large part of the explanation for failure to reduce the prison head count, in spite of the 30% reduction in volumes of cases going through the courts. Mr Grayling has moved on and is now crashing projects at the Department for Transport, and costing us all yet more money.

We know with our own eyes and broken hearts what has happened to the criminal courts: the treatment of witnesses, defendants, and the lawyers, the pressure on the judiciary and the diminishing court staff, court closures and the crumbling infrastructure of what remains.

These aren't original observations. Police Chiefs are increasingly vocal about their inability to investigate mainstream crime. The Chief Constable of Greater Manchester Police has recently admitted that more than 40% of reported crime is not investigated fully in his area because of budget cuts. Every week the news media run stories about how broken things are. Senior Judges occasionally speak out; they lobby hard behind the scenes, but perhaps the time has come for them to find a more public voice, to share more widely what they know to be true. The DPP is similarly constrained from speaking freely, in part by the terms of his employment, but also by an understandable reluctance not to enter the political fray.

Perhaps the time has come for us all to speak, and if necessary act, with more purpose, clarity and cohesion. Publicly funded criminal lawyers essentially keep the system going; solicitors and the bar. If we only did the work we are paid for, only worked the hours which are broadly consistent with the fees paid, were not prepared to work late into and through the night, wouldn't compromise weekends and time with friends and family, I doubt a single criminal trial would be possible.

Each of us has to think hard about what we should and could be doing, as individuals and collectively. How brave we might be. At the end of our careers will we feel proud of the contribution we have made, and leadership we have shown? Leadership is not solely to be found at the highest levels of the profession, or at the top judicial table. It lies within each of us, we can all inspire and galvanise the people around us, if we choose to. Some have voices that can carry a little further, that is true, and the obligation on those with that sort of reach and authority is perhaps the greatest.

Our campaigns have been coming together. The strength of your feeling is now emphatic and inescapable. Inevitably the only political response possible is to promise 'a review'. Reviews are now promised both for prosecution fees and defence fees but without the scantest commitment to actually do anything,

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to invest the substantial amounts necessary, to repair the CJS from bottom to top. Sadly, both presently look rather financially vacuous and deliberately designed to avoid the issues rather than to enthusiastically and immediately address the obvious problems which we have consistently identified.

If you would look an idealistic, brilliant young graduate in the eye, particularly one from a non-traditional background, and discourage them from pursuing a career at the publicly funded criminal bar, because of the state of things, the prospects, the remuneration, the completely unreasonable demands, the uncertainty – if you know in your hearts and heads that the criminal bar is no longer compatible with a happy and full family life, or with a proper life of any description, with the breaks and financial security which barristers in almost every other area of practice enjoy – then you should know what to do.

Be brave. Be proud. Be right.

'Courage calls to courage everywhere'.

Chris Henley QC is a member of Carmelite Chambers and CBA Chair

Forensic Ballistics
Change & Challenge

By Angela Shaw
and Mark Mastaglio

Never has the provision of forensic science to the Criminal Justice System been so fragmented and subject to so much police control. The Government has openly embraced a *laissez-faire*, market-led approach, whereby the police either buys its forensic science from commercial providers or relies upon in-house tests and interpretation. This has had a profound effect on the way gun crime related prosecution evidence is generated. Cuts to police budgets have led the police to think that they can extend their investigative remit and become generators and evaluators of forensic evidence. Only when they lack the expertise and facilities do they spend money on a commercial forensic science provider.

One of the areas of forensic science where the scientist, or indeed non-scientist police employee, is asked, not only to interpret potentially complex issues of empirical inference, but also to interpret the law, is in the examination and interpretation of firearms related evidence.

This article aims to explain, from a forensic scientist's perspective, the most important changes in firearms law and the most frequently encountered challenges that arise with gunshot residue (GSR) related expert evidence.

Firearms legislation is complex. Indeed, in 2015 the Law Commission was asked to look at and provide recommendations on updating the legislation to maximise public safety and to clarify the law. The principal piece of legislation is the Firearms Act 1968 (FA 1968) and prior to the publication of their final Report[1], the Law Commission noted that there were an additional 33 relevant Acts of Parliament and numerous pieces of secondary legislation that regulate the acquisition and possession of firearms.

Even to those familiar with the day to day application of the legislation there were always aspects, sometimes found in the deeper recesses of the morass of the sprawling legislation that had to be looked up and dwelt upon. Lawyers, and in particular those in the CPS, were ever keen for the interpretation of the law to be initially placed on the forensic scientists' shoulders.

The Law Commission consulted widely and published scoping and discussion papers prior to its final Report, which serve as an excellent resource to anyone who wishes to understand the historical issues concerned with the development and interpretation of firearms related law.[2] The Government took forward the majority of the Commission's recommendations in the Policing and Crime Act 2017 (PCA 2017).

The PCA 2017 amended the FA 1968 in a far-reaching way – the most fundamental being that it provided a quantitative definition of what a firearm is. Prior to the introduction of the PCA 2017, section 57(1) of the Firearms Act 1968 defined "firearm" to mean:

…a lethal barrelled weapon of any description from which any shot, bullet or other missile can be discharged and includes
(a) any prohibited weapon, whether it is such a lethal weapon as aforesaid or not;
(b) any component part of such a lethal or prohibited weapon; and
(c) any accessory to any such weapon designed or adapted to diminish the noise or flash caused by firing the weapon; and so much of section 1 of this Act as excludes any

1 Firearms Law – Reforms to address pressing problems. The Law Commission, No. 363, December 2015. ISBN9781474126830. https://s3-eu-west-2.amazonaws.com/lawcom-prod-storage-11jsxou24uy7q/uploads/2015/12/lc363_firearms.pdf

2 *Firearms and the Law.* Rudi Fortson Q.C., 25 Bedford Row, July 2015. A paper commissioned by the Law Commission. https://s3-eu-west-2.amazonaws.com/lawcom-prod-storage-11jsxou24uy7q/uploads/2015/07/Firearms_and_the_Law_R-Fortson_090715.pdf

description of firearm from the category of firearms to which that section applies shall be construed as also excluding component parts of, and accessories to, firearms of that description.

The inclusion of the *lethal* caveat meant that for certain types of gun, e.g. air weapons, reactivated or modified deactivated guns, converted blank cartridge firers, it was necessary to demonstrate that a gun could discharge a projectile that was capable of inflicting an injury from which death might result. However, the lethality test, was not applied in the same way across all forensic science providers, with different methods being employed with differing interpretations of the case law[3]. A wholly unsatisfactory state of affairs.

Section 125(3) of the PCA 2017 amended the FA 1968 in the following way:

"*lethal barrelled weapon" means a barrelled weapon of any description from which a shot, bullet or other missile, with kinetic energy of more than one joule at the muzzle of the weapon, can be discharged.*

This means that the term 'lethal' now has a quantitative definition – if there is doubt as to a gun's status, e.g. is a gun an imitation firearm or a firearm for the purposes of section 16 of the FA 1968, then the scientist will have to accurately measure the kinetic energy of a discharged projectile. It now means that not all firearms can kill, as a 1 joule limit is very low with no known fatalities having ever been caused by projectiles with this kinetic energy.

Quantitative kinetic energy thresholds are also given in the Firearms (Dangerous Air Weapons) Rules 1969 for what are known as *specially dangerous* air guns. Due to the age of the legislation the unit used is not the Joule but the rather more arcane foot-pound.[4] Air rifles and pistols are deemed *specially dangerous* if they are capable of discharging a pellet with a kinetic energy in excess of 12 foot-pounds (16.3J) and 6 foot-pounds (8.1J), respectively.

Much is at stake here for the accused, as possession of a *specially dangerous* air pistol carries a mandatory minimum sentence of five years on conviction. It is therefore beholden on the Crown expert to be capable of providing robust kinetic energy results for both the determination of whether or not a gun is a firearm and whether or not an air gun is *specially dangerous*.

Kinetic energy is defined as the energy a body possesses by virtue of its motion. The amount of kinetic energy (k.e.) a body possesses depends on its mass (m) and how quickly it is moving i.e. its speed or velocity (v). The following equation sets out the relationship between these parameters:

$$k.e. = \tfrac{1}{2} mv^2$$

It follows that in order to calculate the k.e. of a discharged projectile, its mass and velocity have to be measured. In order to correctly measure these quantities, an accurate balance and chronograph are required.

> ***Firearms legislation is complex. Indeed, in 2015 the Law Commission was asked to look at and provide recommendations on updating the legislation to maximise public safety and to clarify the law.***

All measurements are subject to uncertainty and a value is incomplete without a statement of accuracy. Whether or not a piece of equipment is capable of giving accurate readings will depend on its correct calibration. An incorrectly calibrated instrument may be capable of giving reproducibly precise readings even though the measurements are not accurate.

The Home Office Forensic Regulator[5] has set out the quality standards that all forensic science providers and practitioners in the Criminal Justice System *should* adhere to.[6]

Accreditation is the means by which compliance to the quality standards is assessed. The international standard which forensic science laboratories are accredited to is ISO17025.[7] Accreditation to this standard provides assurance that measuring equipment has been calibrated to traceable standards and will measure both accurately and with a defined uncertainty of measurement. Additionally the ISO17025 standard lays down, *inter alia*, the requirement that methods and protocols should be validated.

The United Kingdom Accreditation Service (UKAS) carries out the function of determining whether or not a forensic science provider meets the ISO17025 standard for its methods, protocols and measurements.

In the Forensic Science Regulator Annual Report, 2015, the risks to quality in the delivery of firearms forensic science were noted[8]:

Much of the firearms classification provision, which sits largely with police force staff (for example, armourers), does not meet the current regulatory requirements. The lack of a consistent quality framework for such work across forces creates a significant risk to quality, in particular:

a. *a lack of understanding among force staff of uncertainty of measurement and the requirement for regular, traceable calibration of velocity determination equipment;*

b. *a variable level of expertise.*

We have had experience of in-house police staff, typically of Force Armourers whose core role is to keep the armed response personnel's weapons in good order, providing 'expert' witness statements based on kinetic energy results derived from equipment that was not robustly maintained, validated or calibrated. One case, amongst many, stands out – Kent Police initiated a prosecution for the possession of a *specially dangerous* air rifle, a prosecution which was eventually dropped only after it was shown that the

3 *Read v Donovan [1946] K.B. 326. Moore v Gooderham [1960] 1 WLR 1308; [1960] 3 All ER 575.R v Thorpe [1987] 85 Cr App R 107.*

4 1 foot pound = 1.356 Joules

5 The role of the Forensic Regulator was described in a Written Ministerial Statement; House of Commons Hansard, 12th July 2007, Column 67WS, as follows: "*will be to advise Government and the Criminal Justice System on quality standards in the provision of forensic science. This will involve identifying the requirement for new or improved quality standards; leading on the development of new standards where necessary; providing advice and guidance so that providers will be able to demonstrate compliance with common standards, for example, in procurement and in courts; ensuring that satisfactory arrangements exist to provide assurance and monitoring of the standards and reporting on quality standards generally.*"

6 Codes of Practice and Conduct for forensic science providers and practitioners in the Criminal Justice System. Issue 4 October 2017. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/651966/100_-_2017_10_09_-_The_Codes_of_Practice_and_Conduct_-_Issue_4_final_web_web_pdf__2_.pdf

7 ISO/IEC 17025:2005: General requirements for the competence of testing and calibration laboratories. 2005.

8 Forensic Science Regulator, Annual Report, November 2014 – November 2015, Dr Gillian Tully, 4th December 2015. ISBN: 978-1-911194-11-8. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/482248/2015_FSR_Annual_Report_v1_0_final.pdf

gun in question was significantly below the threshold kinetic energy value of 12 foot pounds and that the opinion provided by Kent Police was unreliable.

The situation has improved since the attention of the Forensic Science Regulator has been brought to bear on the issue of Police Armourers using unvalidated methods to provide 'expert' Reports. However, it is not clear whether or not the practice has been completely eradicated.

The PCA 2017 also defined the term "component part" that appears in 57(1)(b) of the FA 1968. The amendment reads:

For the purposes of subsection (1)(c), each of the following items is a relevant component part in relation to a lethal barrelled weapon or a prohibited weapon –
(a) a barrel, chamber or cylinder,
(b) a frame, body or receiver,
(c) a breech block, bolt or other mechanism for containing the pressure of discharge at the rear of a chamber, but only where the item is capable of being used as a part of a lethal barrelled weapon or a prohibited weapon.

The firearms expert therefore has to show that the alleged component part can be used as a part of a firearm. This is not always done and where it hasn't the expert should be challenged.

> ***In the past decade or so there has been an increase in the supply and use by criminals of old guns, usually revolvers, that the Home Office would consider to qualify for the section 58(2) exemption if held as a curio or ornament.***

The PCA 2017 also attempted to bring some clarity to the issue of modified deactivated firearms.

Section 8 of the Firearms (Amendment) Act 1988 provides that, unless it can be shown otherwise, a firearm which has been de-activated to a standard approved by the Secretary of State, so that it is incapable of discharging any shot, bullet or other missile, is presumed not to be a firearm within the meaning of the Firearms Act 1968 and therefore is not subject to control if it bears a mark approved by the Secretary of State for denoting that fact.

However, if work has been carried out on a deactivated gun, but the extent of the work was insufficient to bring it back to being a firearm then it may be deemed *defectively deactivated* as defined by section 128(4) of the PCA 2017. The statutory defence given in section 1(5) of the Firearms Act 1882[9] and the decision in *R v Bewley*[10] could have a bearing on the legal status of such a gun. There still does not seem to be a harmonised approach to the classification of such guns.

The Law Commission and the subsequent PCA 2017 also attempted to put to bed the long running issue of what constitutes an antique firearm. Section 58(2) of the FA 1968 states:

"*Nothing in this Act relating to firearms shall apply to an antique firearm which is sold, transferred, purchased, acquired or possessed as a curiosity or ornament.*"

In the past decade or so there has been an increase in the supply and use by criminals of old guns, usually revolvers, that the Home Office would consider to qualify for the section 58(2) exemption if held as a curio or ornament. However old revolvers have been used by criminals with adapted modern ammunition.

The PCA 2017 does have a provision, section 126, that will amend section 58(2) of the FA 1968, and define what an antique firearm is. However the Statutory Instrument (SI) that will provide a list of calibres and dates has yet to be introduced.

9 *"In any proceedings brought by virtue of this section for an offence under the 1968 Act involving an imitation firearm to which this Act applies, it shall be a defence for the accused to show that he did not know and had no reason to suspect that the imitation firearm was so constructed or adapted as to be readily convertible into a firearm to which section 1 of that Act applies."*

10 [2012] EWCA Crim 1457.

So the current situation remains the pre-PCA 2017 position. This means that currently there is *no* statutory definition of what constitutes an antique firearm.

The latest Home Office guidance on firearms licensing law encapsulates some of the, now disbanded, Firearms Consultative Committee recommendations on what should be regarded as an antique firearm for the purposes of the 1968 Act.[11] This guidance on whether a particular weapon should benefit from the section 58(2) exemption is predicated on whether the method of loading or the operating mechanism is obsolete, or whether the cartridges are no longer readily available. They regard the firearm's obsolescence and availability of ammunition, arising from a desire to minimise any threat to public safety, to be the crucial issues when considering the applicability of the section 58(2) exemption, as opposed to the age of the firearm. The Home Office guidance also includes a list of what it considers to be obsolete calibres.[12] The CPS tend to rely upon this guidance, but it is *not* Law.

There are a number of stated cases that address the issue.[13] In short until the SI amending the section 58(2) exemption is introduced the position remains that once an antique firearm defence has been raised, it is for the prosecution to prove that the gun is not an antique, which ultimately is a matter of fact and degree for the court to decide upon.

There are also a couple of areas concerned with the legal classification of firearms that the PCA 2017 did not touch upon but are currently, to use the social media vernacular, trending.

The first is the variation in charging when it comes to stun guns which have a dual function as a torch. Section 5(1A)(a) of the FA 1968 prohibits any firearm disguised as another object, whilst section 5(1)(b) prohibits any weapon of whatever description designed or adapted for the discharge of any noxious liquid, gas or other thing (the latter from *Flack v Baldry*[14] includes electricity). The issue is that sometimes the CPS charge with 5(1A)(a) and sometimes with 5(1)(b). This is not merely of academic interest as the former carries the mandatory minimum five-year sentence on conviction and the latter does not.

The second classification topic of the moment concerns so-called forward venting blank firers. These types of gun are sometimes referred to as "Alarm" pistols reflecting their use in personal protection, where discharging one or more cartridges is intended to deter an attacker and alert others. Typically, these types of pistol are sold on the continent without the need for certification as alarm, signalling and non-lethal personal protection weapons capable of discharging irritant containing cartridges. They are mostly made from non-ferrous alloy and plastic, and are not designed to discharge conventional bulleted cartridges; the barrel being partially obstructed in order to prevent this. The last few centimetres of the barrels bore at the muzzle are usually threaded to allow a flare adaptor to be screwed into position. Use of such a flare adaptor and the appropriate 15mm flares enables the gun to be used as a signal pistol.

Variation between the classification of such guns has been noted with some prosecution experts deeming such guns to be prohibited weapons by virtue of section 5(1)(b) and others saying that they are prohibited weapons defined by section 5(1)(aba)[15], despite the latter having an exemption for signalling apparatus. Again this has consequences, as the section 5(1)(aba) offence again carries the mandatory minimum five-year sentence.

11 Guide on Firearms Licensing Law, Chapter 8, ISBN: 978-1-78246-010-7, April 2016.
12 Ibid., Appendix 5.
13 *Richards v. Curwen [1977] 3 All E.R. 426, R v Howells [1977] Q.B. 614, R v Burke [1978] 67 Cr. App. R. 220, Bennett v Brown [1980] 71 Cr. App. R. 109,* amongst others…
14 [1988] 1 WLR 397.
15 *"any firearm which either has a barrel less than 30 centimetres in length or is less than 60 centimetres in length overall, other than an air weapon, a muzzle-loading gun or a firearm designed as signalling apparatus."*

It is not only firearms legislation that is complex but so too is the other aspect to forensic ballistics, the production, deposition and interpretation of GSR evidence, otherwise referred to as forensic firearms chemistry.

The police forces in England and Wales currently submit GSR case work to three private forensic providers; Key Forensic Services (KFS), Eurofins Forensic Services (EFS) and Cellmark, and do not undertake any GSR analysis themselves as they deem it a 'higher risk' compared with commodity evidence types such as DNA profiling. Since the closure of the Forensic Science Service (FSS) in 2012 the Metropolitan Police Service (MPS), through a procurement exercise, has awarded contracts, including GSR case work, to Cellmark and subsequently Eurofins Forensic Services.

The demand for GSR remains strong but the expertise is mainly concentrated with one provider, EFS, others have little resilience. KFS went into administration in January 2018 and was bought out in March 2018 but still continues to lose money.[16] The other side to this is the almost complete absence of research and development being carried out by the main FSP's. Each scientist spends greater than ninety percent of their time delivering case work to demanding timelines and the fragmentation of work between multiple FSP's has led to fragmentation of background data sets for the interpretation of evidence.[17]

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Very little GSR research is being undertaken to maintain, in some instances, over twenty years of data collated and utilised by the then FSS. Key areas of challenge to GSR evidence in criminal Trials include the potential for the findings to have arisen due to cross-contamination. Armed police officers are vital in securing the arrest of suspects and searching scenes for the presence of firearms and ammunition. However, by the very nature of their role, they are likely to be contaminated with GSR and this can be transferred through physical contact with a suspect or introduced into a suspect's address or vehicle.

Surveys by the FSS demonstrated that high levels of GSR were present on officers, their equipment, vehicles and operational command units. It is anticipated that this is still very much the position. In the absence of current surveys regarding the levels and types of GSR in the armed police working environment any criminal case involving the arrest of a suspect by an armed police officer and in which GSR has been found must be subject to challenge.

A fatal shooting in Glasgow in January 2010 in which armed police officers had searched the suspects address and from which a single GSR particle was found on a jacket led to the Judge, Lord Brailsford, ruling the particle inadmissible as evidence.[18] The firearms officer involved admitted that he and his colleagues had been training with firearms in the same uniforms that were worn during operational duties. Lord Brailsford described the particle as of no evidential value and as such there was insufficient evidence to convict. Clearly the decision to admit evidence lies with the Court but the events in the lead up to the arrest of a suspect and seizure of evidence must be made transparent to all involved in judicial proceedings.

In the case of *R v Gjikokaj* two GSR particles were found in the defendant's car after he was arrested for a fatal shooting in October 2008.[19] Mr Gjikokaj was convicted of murder and later appealed the conviction on a number of grounds, one being the admissibility of the GSR evidence. The case advanced at the original trial on behalf of the appellant included the evidence that an armed police officer had stopped him in the vehicle and this could explain the presence of the GSR. In this instance the evidence of the intervention by the armed police officer was fully disclosed and there was no misdirection given by the Trial Judge. As such in the view of the Court of Appeal, the primary scientific evidence relating to the GSR should have been admissible and based on this and other grounds the appeal was dismissed.

In the absence of such rigour, miscarriages of justice will occur such as in the case of *R v Dwaine George.* Mr George was convicted for murder, attempted murder and possession of a firearm in 2002. A jacket found at his home address bore a low level of GSR however at Trial all possible sources of the GSR were not introduced. The GSR could have originated from the shooting but it could also have transferred from a dummy cartridge that Mr George kept at home, from unknowing transfer from armed officers during an earlier incident or from contact with known associates and their clothing upon which GSR had been found.

The Criminal Cases Review Commission referred the case to the Court of Appeal reflecting that it could be concluded that the weight of the GSR evidence was not appropriately conveyed to the jury and there should have been a warning relating to the limited significance that could be attached to such evidence. The appeal was upheld and the convictions quashed.[20]

We hope that the above quick run through of some of the issues of the moment make it clear that whilst laudable efforts have been made to simplify the labyrinthine web of Firearms legislation and to apply greater rigour to trace evidence interpretation there are still expert opinions and legal interpretations that need to be challenged to ensure an equality of quality between defence and prosecution.

FORENSIC FIREARMS CONSULTANCY

Angela Shaw and Mark Mastaglio are firearms experts working for the Forensic Firearms Consultancy

16 http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/science-and-technology-committee-lords/forensic-science/written/89757.html
17 http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/science-and-technology-committee-lords/forensic-science/written/89800.html
18 HM Advocate v. Ross Monaghan.
19 [2014] EWCA Crim 1457.
20 *R v George (Dwaine)* [2014] EWCA Crim 2507.

Promoting Reliability in Expert Evidence?

By Natalie Wortley and Tony Ward

In 2011, a Law Commission report sought to address concerns that unreliable expert evidence was contributing to miscarriages of justice.[1] The common law *laissez-faire* approach to the admissibility of expert opinion rested on a presumption that such evidence should be admitted because the jury would be capable of assessing its weight. It was assumed that any (un)reliability issues would be revealed via the traditional trial safeguards of cross-examination, the adduction of contrary expert evidence and jury directions. However, as the Commission observed,

"[a] more credible assumption, at least in relation to complex scientific or technical fields, is that juries will often defer to the expert providing the opinion. If such an expert's opinion evidence is unreliable, the dangers associated with deference are obvious..."[2]

The Commission therefore recommended the introduction of special rules to ensure that expert evidence is only admitted if it is "sufficiently reliable".[3] In what Lord Thomas CJ in his Kalisher lecture called "a novel way of implementing an excellent report" a combination of case law and amendments to the Criminal Practice Directions 33A (now CrimPD 19A) brought most of the recommendations into effect without recourse to legislation.[4]In *R v H*, Sir Brian Leveson P had envisaged that these changes would result in a "new and more rigorous approach" to expert evidence.[5] In fact, they appear to have had little, if any, impact. In 2016, Davies and Piasecki reported "an unaltered approach to expert evidence in the daily practice of courts across England and Wales".[6]

The Law Commission had repeatedly emphasised that, if implemented, the suggested changes to the rules governing the admissibility of expert evidence would need to be accompanied by training for lawyers and the judiciary, to ensure accurate and consistent understanding and application of the new evidentiary reliability factors. In *R v H*,[7] Leveson P disclosed that the Advocacy Training Council (ATC) was then in the process of preparing a "toolkit" for advocates, "itself based upon the recommendations in the Law Commission's Report".[8] In March 2019, the ATC's successor, the Inns of Court College of Advocacy, finally published *Guidance on the Preparation, Admission and Examination of Expert Evidence*, subtitled *Promoting Reliability in Expert Evidence* (hereafter 'the Guidance').[9]

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Research evidence-based toolkits on vulnerable witnesses and defendants have been described as "a step forward in advocacy".[10] In this article, we discuss and evaluate the efficacy of the Guidance and assess whether it has the potential to bring about a similar change in culture in relation to expert evidence.

Scope of the Guidance

Labelled "Guidance", the new document is certainly not the "toolkit" Leveson P promised. It does not follow the format of the vulnerable witness toolkits produced by The Advocate's Gateway, which identify relevant underpinning research and "represent best practice",[11] with numerous examples and suggested solutions. There are currently eighteen vulnerable witness toolkits, each with a clear aim and scope

1 *Expert Evidence in Criminal Proceedings in England and Wales* (Law Com. No.325)
2 Ibid., 1.20
3 Ibid., 3.36
4 https://www.judiciary.uk/wp-content/uploads/2014/10/kalisher-lecture-expert-evidence-oct-14.pdf, para. 17.
5 [2014] EWCA Crim 1555, [44]
6 Gemma Davies and Emma Piasecki, 'No more laissez-faire? Expert evidence, rule changes and reliability: Can more effective training for the Bar and judiciary prevent miscarriages of justice?' [2016] J Crim L 327
7 n.5
8 n. 5, [43]
9 https://www.icca.ac.uk/images/download/expert-evidence/Expert-Guidance-final-copy-with-cover-2019.pdf
10 Penny Cooper, Coral Dando, Thomas Ormerod, Michelle Mattison, Ruth Marchant, Rebecca Milne and Ray Bull, 'One Step Forward and Two Steps Back? The "20 Principles" for Questioning Vulnerable Witnesses and the Lack of an Evidence-Based Approach' (2018) 22 E&P 392, 402.
11 CrimPD 3D.7

indicated by its title. In contrast, the title of the Guidance suggests that it covers all stages of proceedings, up to and including the examination of experts, whereas the foreword states that it deals with the "pre-trial stage" and the conclusion states that it is *not* intended as a guide to evidence in chief or cross-examination. Mention is made of other "guidance documents" (para. 1.2), but it is not clear what is being referred to here or where such documents might be found.

The Guidance does advise advocates to check whether any documentation has been issued by professional bodies in the field within which an expert operates, such as the General Medical Council guides for expert witnesses. Mention of the Forensic Science Regulator is conspicuously absent. The role of the Regulator is to ensure that forensic science services across the criminal justice system are subject to an appropriate regime of scientific quality standards. The Regulator publishes both general and discipline-specific Codes of Conduct and Practice for forensic science providers and practitioners, as well as guidelines on general issues such as contamination, cognitive bias and validation. Although these documents as yet have no statutory force, there is a clear expectation that all commercial and police providers of forensic science evidence will comply with their requirements. They are essential reading for criminal practitioners preparing to instruct or cross-examine an expert.

Indeed, the Guidance seeks to encompass civil, family *and* criminal proceedings, each of which involves different procedural and evidential rules and authorities. Much of the advice proffered is so generic and superficial as to afford little real guidance to the criminal practitioner. The section on choosing an expert is a case in point. It suggests that advocates should satisfy themselves that the expert they propose to instruct "has the requisite experience, up-to-date knowledge and, where necessary, has carried out sufficient research to give evidence which is credible and reliable" (para. 3.3). Advocates are then encouraged to consider whether the expert is "at the 'cutting edge' of the latest developments in the discipline". Even if legal aid rates were capable of securing an expert at the "cutting edge" of their field, such developments in forensic science may be precisely those whose validity is most doubtful. It is more pertinent to ask whether a forensic service provider has been accredited by the Forensic Science Regulator. As the Regulator's latest Annual Report reveals, "there are numerous very small organisations with little or no accreditation" and no external assessment of the quality of their work.[12] Similarly, a discussion on "working with your expert" anticipates that advocates will need to understand "how research is carried out and the significance of various levels and types of study (randomised controlled, observational, cross-sectional, longitudinal, etc.)" (para. 6.2), which seems relevant to complex "toxic tort" cases rather than criminal trials.

> ***The role of the Regulator is to ensure that forensic science services across the criminal justice system are subject to an appropriate regime of scientific quality standards.***

When considering whether to instruct, or seek to call an expert to testify, criminal practitioners clearly need to be aware of the basic admissibility tests established at common law, as well as the aforementioned reliability factors now enshrined in the CrimPD. The discussion of admissibility in the Guidance focusses exclusively on civil and family law. There is no mention of *Turner* [1975] QB 834, which lays down the test of admissibility in the criminal context. There is a reminder that an expert must confine their evidence to their own discipline and the "well-known miscarriage of justice" in the Sally Clark case is mentioned briefly.[13] In that case, Professor Roy Meadow's infamous Grand National analogy was made in response to a question put to him in cross-examination. As Auld LJ recognised, without careful preparation, cross-examination can become a "fevered process", in which "mistakes can be made, ill-considered assertions volunteered or analogies drawn by the most seasoned court performers".[14] If CrimPD 19A is used properly, it could ensure that an expert does not stray outside their area of expertise. Although CrimPD 19A may be deployed to exclude evidence of doubtful reliability, it is also a vehicle by which the court may control the manner in which an expert expresses their opinion.[15]

The Guidance also refers to the burden and standard of proof and makes the point that experts provide evidence to inform the court's decision and "should not try, or be seen to try, to usurp the decision-making role of the court" (para. 5.3). While true in general, there is no explanation or analysis of the "ultimate issue rule". In the criminal context, it is clear that an expert may properly be invited "to express an opinion on the 'ultimate issue' where that is necessary in order that his evidence provide substantial help to the trier of fact" (*Pora* [2015] UKPC 9 at [27]; see also *Sellu* [2016] EWCA Crim 1716). Furthermore, in the context of diminished responsibility it is now clear that "where there simply is no rational or proper basis for departing from uncontradicted or unchallenged expert evidence then juries may not do so" (*Brennan* [2014] EWCA Crim 2387). It is for this reason that the Crown Court Compendium now suggests that, in rare cases, a judge "may withdraw murder where there is uncontradicted medical evidence of diminished responsibility, even if there is some other evidence of murder."[16].

Promoting Reliability?

While acknowledging that advocates have a "crucial role" to play in promoting reliability (para. 1.1), the Guidance omits any explanation of what this means, with the exception of a brief reference to the "quality and quantity of data" upon which the expert relies (para. 5.2). As was highlighted in a recent report from the USA, establishing validity is essential to demonstrate reliability.[17] There are, broadly speaking, two aspects to validity: foundational validity (the method can, in principle, be reliable) and validity as

12 *Annual Report* 2018, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/786137/FSRAnnual_Report_2018_v1.0.pdf, p. 25.
13 [2003] EWCA Crim 1020
14 *Meadow v GMC* [2007] QB 462, [207]
15 See Tony Ward, Gary Edmond, Kristy Martire and Natalie Wortley, "Forensic Science, Scientific Validity and Reliability: Advice from America' [2017] Crim LR 357.
16 The Crown Court Compendium, Judicial College, December 2018, 19-5
17 *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature- Comparison Methods*, President's Council of Advisors on Science and Technology, 2016

applied (the method has been reliably applied in practice).[18] Disappointingly, aside from replicating the contents of CrimPD 19A, the Guidance does not mention validity at all.

The Guidance does contain a checklist for advocates when interviewing, preparing cross-examination and preparing to challenge the admissibility of expert evidence (para. 4.2). The checklist is modelled on (though makes no mention of) CrimPD 19A. There is brief mention of the Law Commission earlier in the Guidance, but no real sense of the importance of its concern for reliability. As mentioned above, there is some evidence that advocates are simply not engaging with CrimPD 19A or considering issues of reliability at all. If that is right – and the dearth of Court of Appeal cases on the topic suggests it may be right – simply reiterating the factors in Part 19A without explanation or comment is unlikely to be an effective tool for encouraging reliability challenges. In the one place where it is suggested that a court may refuse to admit evidence, the example given is that of a single, unproven methodology and the case that is referred to concerns litigation-driven research in a civil context (para. 5.2). There is no attempt to explore the types of cases in which CrimPD 19A might be invoked to exclude expert testimony in criminal proceedings. Given the current state of knowledge of the dangers of relying on various types of feature-comparison evidence in particular, this appears to be an opportunity missed.[19]

The only gloss the Guidance puts on the CrimPD 19A factors, drawn from dicta in two Scottish civil cases, is that, "[a]s with Judicial or other opinions, what carries weight in expert opinions is the reasoning, not the conclusion" (para. 4.2.12). This gnomic remark ignores the differences between criminal and civil proceedings. A civil judgment may devote many paragraphs to analysing an expert's opinion, and in the more specialised civil courts judges will often be familiar with the expert's field. It is unrealistic to expect criminal juries to provide this kind of scrutiny. The point at which an expert's reasoning needs to be closely scrutinised is in deciding whether the conclusions the expert intends to lay before the jury are "sufficiently reliable to be admissible as evidence".[20] This is why it is so important to make advocates aware of the possibility of admissibility challenges and the Guidance does not perform this function.

The ICCA also fails to recognise that often the only report a criminal advocate will see is a "streamlined" report (SFR), where the "streamlining" consists precisely of stating the conclusion without the supporting reasoning. Advocates need to be aware that such a conclusion (often written by a non-scientist) may be more susceptible to challenge than it appears. As Edmond, Carr and Piasecki explain, the drive towards SFR may well be incompatible with ensuring the validity and reliability of forensic science evidence.

> *The Guidance rightly draws attention to the need to ensure that the expert and the advocate are "speaking the same language".*

The SFR1, in particular, "introduces new risks of misrepresentation, misunderstanding and mistakes".[21]

Another crucial point that criminal advocates need to be aware of, and the Guidance fails to address, is the difference between "source level" and "activity level" propositions. It may, for example, be established by valid scientific tests, to an extremely high degree of probability, that the defendant's DNA was found on a knife handle. Whether the defendant picked up the knife, however, is a different question and the answer may be much more speculative, because of lack of scientific knowledge of the likelihood of secondary transfer of DNA to surfaces that person has not touched. Again, it is vital that the advocates are aware of the importance of the expert's report setting out clearly the terms in which the evidence is to be given, so that the judge can make a ruling on whether it is admissible or needs to be modified to avoid misleading the jury.[22]

The "Guidance" offers no guidance at all on these vitally important matters.

The Guidance rightly draws attention to the need to ensure that the expert and the advocate are "speaking the same language" (para. 5.1) but ignores one of the most pressing "language problems" in the area of forensic science, namely the translation of statistical calculations or estimates of probability into "verbal scales" of degrees of support for a proposition. It is very important that when such expressions are used their limitations – where, for example, they are based only on experience or informed guesswork – "be made crystal clear to the jury".[23]

Conclusion

Changes in attitudes towards the cross-examination of vulnerable witnesses, including the willingness of advocates to engage in training, have shown that it is possible to alter embedded practices in the criminal courts. A similar approach urgently needs to be taken to expert evidence. Toolkits applicable to criminal lawyers, which focus on issues of validity and reliability, alongside the training urged upon the profession by the Law Commission may be the solution. For criminal practitioners at least, this latest Guidance is unlikely to be the "vade mecum" Lord Hughes, in his Foreword, hopes it will be. What is needed is a guide to pre-trial procedures, admissibility issues and the questioning of witnesses that specifically addresses the issues confronting criminal advocates.

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18 Ibid.
19 n.15.
20 CrimPR 19.4(h)
21 Gary Edmond, Sophie Carr and Emma Piasecki, 'Science Friction; Streamlined Forensic Reporting, Reliability and Justice' (2018) 38(4) OJLS 764.
22 *R v Reed and Reed* [2010] 1 Cr App R 23, [122], [127], [131].
23 *R v Atkins* [2010] 1 Cr App R 8, [76].

Forensic DNA profiling

Introduction

DNA evidence made its courtroom debut in the case of Colin Pitchfork, who was convicted of murder in 1988. When it was first introduced, large volumes of material were required to obtain a result. However, as the realisation of the benefits of DNA testing gathered pace, so did the development of the methods used. By the time I started my career as a forensic reporting biologist in 2002 the SGM Plus DNA test was the routine test used in criminal casework and had already been around for 3 years. The capabilities of DNA testing were continuing to develop fast and the use of the National DNA Database as a source of assistance in identifying unknown individuals was routine. Throughout my career I have been trained in DNA processing methods and reporting results for presentation at court using a variety of DNA techniques. Looking back, it is impressive to see the range of developments; such as the increased sensitivity, the wider range of sample

By Dr Philip Avenell

types from which we can obtain a DNA profile and the wider investigative avenues available. It is also fair to say, with advances in Next Generation Sequencing (NGS) technology commonly seen in modern genetic research, we are about to go through another evolution in technology within the next 10 years or so.

In the same way that the DNA tests have advanced over the years, so has the interpretation and evaluation of the results obtained. With regards to whom the DNA detected could have originated, statistical evaluation has always been needed in order to assess how frequent, or common, a DNA profile is within a given population of individuals. However, the methods always became limited when the complexity of the result increased. That complexity could either be because there were multiple individuals who could have contributed to the sample, or there was very little DNA within the sample, commonly referred to as low template DNA. Advances in both statistical modelling and the necessary computer processing required to deal with the complex algorithms has led to several methods capable of dealing with these complexities.

However, despite these technological and statistical advances, the key area of interpreting the context of the DNA within the scenario in question remains of utmost importance. The principles behind these evaluations remain unchanged and will continue to do so. The increase in pressure for quicker and cheaper results means that this crucial area may be overlooked

or not addressed in initial reports (for example Short Format Reports). Vital questions include, '*How and when was the DNA deposited*?', '*Could there be an alternative explanation for why the DNA was detected here?', 'Just because their DNA is on that knife does that mean they handled or used it?*'. DNA detected using today's techniques is far more likely to identify the individual from which the DNA could have originated, however, does that mean they committed a crime? In this article we will address some questions of critical importance when considering the significance of a DNA result within the specific context of the circumstances and methods of testing which have been carried out.

How is DNA tested?

The aim of this article is not to make the reader a DNA profiling expert. It is, however, important that we first address what DNA profiling is and how it is undertaken. We cannot cover all eventualities in this article but will cover the most significant ones.

The DNA profiling process typically involves many steps (as shown in figure 1). The extent and specific technique applied in each of these steps can vary depending on the sample type or manufacturer's kit used. Some modern processes may even remove some of these steps, however the overall principles remain the same. Once a sample has been collected, the first step must be to extract the DNA or make it available from all the other material within the sample, for example unwanted biological material from the cells themselves, and any background material such as dirt or environmental chemicals, all of which may interfere with the DNA profiling technique.

Once the DNA is 'available' it is necessary to understand how much is present. This is to ensure that the right amount of DNA goes into the next stage of the process, too much or too little input DNA and the detection of DNA present in the sample becomes difficult or misleading.

The next stage is to target and copy the areas of DNA which are of interest in the DNA profiling technique. This process is often considered as similar to photocopying pages from a book, where we are concerned with only specific sections of the book and not copying and recreating the whole thing.

Finally, it is necessary to identify the DNA which is present, and this is effectively achieved by passing it through a sieve and determining the size of the copied sections of DNA, determined by how quickly they pass through.

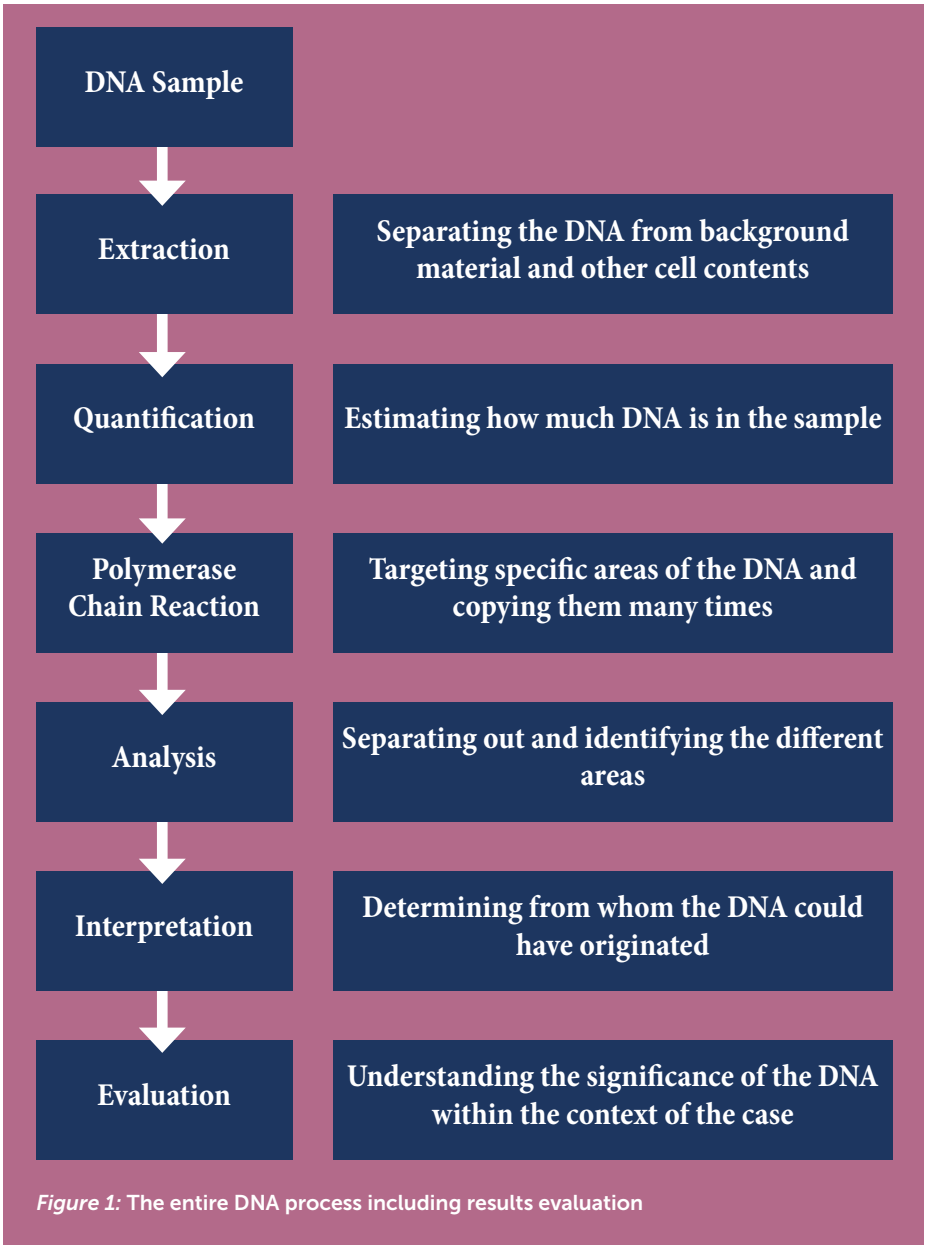

Figure 1: The entire DNA process including results evaluation

Considering the exact DNA process used and the results at each stage of the process can be critical in attributing detected DNA to a body fluid or evaluating the significance of how it was deposited. For example, the volumes of chemicals used in the various stages of the process may affect the actual amount of DNA detected in the original sample. This must be considered when comparing this to reference literature and assessing the likelihood of DNA transfer. Similarly knowing the amount of DNA can assist in determining whether a body fluid such as saliva was present in a sample rather than just large amounts of 'touch' DNA.

Current DNA profiling Techniques

The current DNA profiling technique used for routine crime stain testing is commonly called 'DNA 17'. This technique was introduced by the Home Office and forensic service providers in August 2014 and was a significant change from the previous technique known as SGM Plus. Firstly DNA 17 looks at 16 different areas of DNA plus Amelogenin, a further area which indicates if the sample was from a male or female, whereas SGM Plus only looked at 10 areas plus Amelogenin (importantly these 10 areas are present within the DNA 17 test and therefore results can be compared between these tests).

Increasing the number of areas targeted allows for higher discrimination when

considering the source of the DNA, however, for simplicity, the figure quoted within UK Court rooms for full profile matches remains unchanged. Another improvement is the significant increase in sensitivity of the kits, allowing DNA profiles to be obtained from samples which previously contained too little DNA for detection. In addition, they are also much more resistant to inhibitors and therefore more likely to give a DNA result from difficult or dirty samples.

Whilst these advantages have led to an increase in the numbers of DNA profiles being obtained, the increase in sensitivity has also led to an increase in detection of DNA from more than one person and as a result greater difficulty for the scientist in interpretation. A further consideration is also a greater risk in the potential for contamination – the inadvertent or accidental transfer of DNA during the storage, transfer or examination of an item or sample. Improvements in protocols and cleaning regimes have had to be introduced to reduce the risk of contamination as much as is practically possible, but this risk can never be eliminated and so another key aspect of results evaluation in the context of a scenario is understanding exactly how the sample was collected and processed.

Defining small amounts of DNA

The new tests have been significantly improved such that they are much more sensitive than routine SGM Plus. This has implications for the reporting scientist when considering factors such as attribution (*from what body fluid did the DNA originate?*), transfer (*was the DNA deposited as a result of primary, secondary, tertiary transfer?*) and persistence (*how long has the DNA been on this item?*). All of these could be significant factors when considered in the context of the case.

The issue of DNA sensitivity was one that the Courts attempted to address in the cases of Reed and Reed and Garmson in 2009 (EWCA Crim 2698). In these cases, there was a significant issue with low template DNA. The court attempted to define low template DNA as any amount lower than 200pg (picogram is 10^{-12} of a gram). There are approximately 6.5pg of DNA within a single cell and so this equated to approximately 30 cells. Any result with less than this amount of DNA was to be considered low template and the interpretation to be treated with greater caution. However, this approach was not widely accepted by scientists because there are many factors which may affect the accuracy of this measurement. A sample may generate a quant value in excess of 200pg, but due to degradation / poor quality of the DNA present the result may exhibit 'low template' characteristics. Similarly, if the sample contains DNA from more than 1 individual this result could be misleading as it is a measure of total DNA in a sample and cannot determine what contribution comes from different individuals in a sample. Therefore, scientists must take a much more rounded view when considering if a sample contains low template DNA and consider all of the process from the extraction technique through to the precise volumes used at each stage of the DNA profiling process as well as the final result itself.

> ***The aim of this article is not to make the reader a DNA profiling expert. It is, however, important that we first address what DNA profiling is and how it is undertaken.***

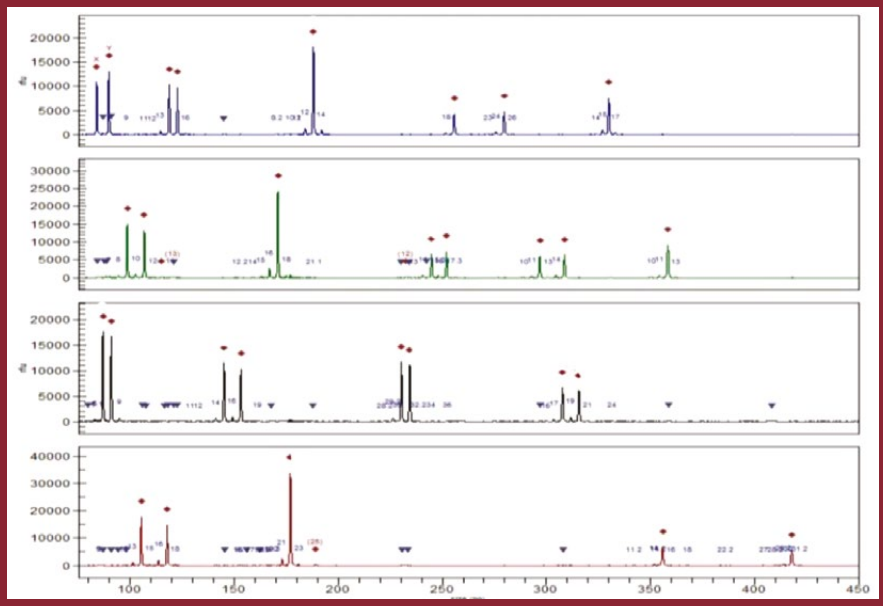

Figure 2: Example of a DNA 17 profile

Contamination

The risks of contamination are significantly increased as the sensitivity of the DNA profiling process increases and therefore careful consideration of all aspects of the sample and its route through DNA profiling are critical. Contamination could occur at the crime scene, in transit, in the examination process or in the DNA testing laboratory itself. The scientist must consider each of these areas as well as the possibility of person to item, item to item and transfer via an intermediate surface.

Laboratories go a long way to identify and eliminate contamination by utilising techniques such as elimination databases, which compare the results of all samples processed against staff DNA profiles and other samples processed within the same batch, and strict cleaning and exhibit handling protocols. Whilst these approaches are highly effective at minimising the risk of an undetected contamination event, they cannot eliminate it. It is worth noting that events which can cause contamination are rarely obvious and identification requires a wider knowledge of a case to identify them.

To illustrate this let us consider an example involving a sexual assault. An individual was charged with the assault which he strongly denied, but for which he was unable to provide an explanation for his innocence. The only information he could provide was that he had been arrested for an unrelated alleged offence around the same time as the reported sexual assault. On review of his case it was identified that a sample of carpet submitted to a forensic laboratory for examination in an unrelated case contained his semen (although this had never been tested). At the same time this item had been examined, the intimate samples from a victim of alleged rape were also being processed in the same laboratory. Due to the nature of the examinations in these cases it was identified that fibres from the carpet could have transferred via laboratory equipment such that they were detected on the intimate samples. Given that the semen on the carpet was not DNA tested this was not picked up by laboratory contamination checks and so went undetected until we reviewed the case notes.

Another issue we have encountered is that it is often believed by operative staff that sufficient anti-contamination measures are being taken, without an appreciation of the sensitivity of modern DNA testing methods. This might be, for example, when items are recovered from a scene and an individual is wearing protective gloves. The individual may be wearing suitable clean gloves and consider themselves to be taking anti-contamination measures, but they are only protecting themselves from depositing their DNA onto an item and not from transferring DNA between items, unless they regularly change or clean their gloves. A lack of regular glove changing, or cleaning means material picked up on the gloves whilst handling one item may then be transferred to another item. Careful consideration of continuity records and examination/

recovery notes may be required to ensure the risk of contamination between items has been minimised.

Statistical Evaluation

The evaluation of DNA results can be achieved using one of two methods, the match probability or likelihood ratio. The match probability evaluation is used when the components of interest can be unambiguously said to have originated from a single individual, whether this be a single source result or a 'major/minor' result. This method assesses the probability of a random individual in the given population having the same DNA profile as the one detected by chance. The fewer the number of DNA components detected, the more likely another individual in a defined population could also have that DNA profile.

> *...forensic DNA profiling has developed significantly in its ability to assist in solving criminal investigations. The capabilities of the technology have and continue to improve year on year.*

Recent guidance from the Forensic Science Regulator has led to the match probability approach only being applied to results where the scientist is confident that a complete profile from one person has been obtained.

When results fall outside this category the biggest question is '*why can't we apply a routine match probability statistic?*' This can be due to a number of reasons, including that the result is too weak to accurately determine whether a DNA component is truly present; there are too many contributors of DNA to the result; or, there is uncertainty as to the number of contributors. In these cases, the most appropriate methods to assess these results are those of the probabilistic models using a likelihood ratio. This approach compares the likelihood of obtaining the result given each of two competing hypotheses, one considered as the prosecution hypothesis and the other the defence. The result is presented as being X times more likely if one hypothesis is correct rather than the other. There are numerous probabilistic models available, such as LiRa, Resolve, STRmix™ and EuroForMix.

Finally, it is worth noting that despite the advances in software, not all results are suitable for statistical evaluation, meaning that there are occasions where a DNA finding with respect to an individual cannot be evaluated further. In these instances, the DNA findings are evidentially neutral, meaning they provide support for neither the prosecution, nor defence.

Understanding the significance of the results

The evaluation of the significance of a DNA finding within every case should consider a number of key questions. These address each stage of the DNA process, from the recovery of an item and collection of the DNA sample through to the evaluation of the result within the context of the case, to ensure appropriate consideration has been given to the accuracy of the results presented.

The key questions to address will depend on sample type, nature of the result and specific scenario being presented. For example, where there is only a small amount of DNA in a sample then it is key to understand factors such as whether any assumptions as to the number of contributors are accurate, or if it is even possible to accurately determine how many contributors there are. If there is any doubt, then this must be addressed appropriately as it can have a significant effect on the strength of the statistical evaluation which should be presented.

Understanding the possible significance of contamination may be a key factor. Whilst all laboratories put in place strict protocols and procedures to minimise any such risk, it is never possible to completely eliminate the possibility of contamination. Specific examples such as that described above and others have demonstrated that in certain specific situations it is right to question and challenge the possibility that contamination could be an explanation for the findings.

The final key area for consideration is that of transfer and persistence. Given the right circumstances it is entirely possible for DNA to be transferred from one surface to another. It is also possible, depending on circumstances, for this transferred DNA to be subsequently transferred and detected on a further surface, giving the impression that an individual has handled or come into contact with this surface even when in reality this has never been the case.

One final example surrounds an individual accused of having oral sex with a teenager in a bed. 'Saliva' was detected in the crotch of a pair of boxer shorts and a mixed DNA profile was obtained. This finding was claimed as positive support for the prosecution case. However, it is known that other substances can also give positive test results to the test for saliva. Because of the way the boxer short material was sampled it was not possible to tell if the 'saliva' was on the inside or outside of the shorts. The defendant had a chest infection and was constantly coughing and spluttering. Both admitted sharing a bed and so it was not possible to determine how the saliva had been deposited on the shorts.

Conclusion

In summary, forensic DNA profiling has developed significantly in its ability to assist in solving criminal investigations. The capabilities of the technology have and continue to improve year on year. The developments in statistical evaluation have also made the ability to robustly assess whether DNA could have come from an individual routine for most cases despite the strength or complexity of the result.

However, whilst the ability to detect and link DNA recovered from a sample to a specific individual has improved dramatically over the years it has, and always will, remain critical to step back from the actual DNA result itself and consider it within the overall context of the case. A statistical DNA match in the order of 1 in a billion can provide extremely strong support in one case, however, depending on case circumstances, it could be evidentially worthless in another. Issues regarding contamination, attribution, transfer and persistence will always be critical in assessing whether or not the DNA evidence can help address the actual events which took place.

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Expert Evidence: The Rules

By Professor Peter Hungerford-Welch

In *R v Harris* [2005] EWCA Crim 1980; [2006] 1 Cr App R 5, Gage LJ, giving the judgment of the Court of Appeal, stated (at [271]):

"It may be helpful for judges, practitioners and experts to be reminded of the obligations of an expert witness summarised by Cresswell J in *National Justice Cia Naviera SA v Prudential Assurance Co Ltd (Ikarian Reefer)* [1993] 2 Lloyds Rep 68 at 81 … which we summarise as follows:

(1) Expert evidence presented to the court should be and seen to be the independent product of the expert uninfluenced as to form or content by the exigencies of litigation.

(2) An expert witness should provide independent assistance to the court by way of objective unbiased opinion in relation to matters within his expertise. An expert witness … should never assume the role of advocate.

(3) An expert witness should state the facts or assumptions on which his opinion is based. He should not omit to consider material facts which detract from his concluded opinions.

(4) An expert should make it clear when a particular question or issue falls outside his expertise.

(5) If an expert's opinion is not properly researched because he considers that insufficient data is available then this must be stated with an indication that the opinion is no more than a provisional one.

(6) If after exchange of reports, an expert witness changes his view on material matters, such change of view should be communicated to the other side without delay and when appropriate to the court".

Gage LJ noted (at [273]) that this guidance was "very relevant to criminal proceedings and should be kept well in mind by both prosecution and defence".

The law relating to expert evidence has largely been codified in Part 19 of the Criminal Procedure Rules and in Criminal Practice Direction V, section 19A. Paragraph 19A.1 notes that:

"Expert opinion evidence is admissible in criminal proceedings at common law if, in summary, (i) it is relevant to a matter in issue in the proceedings; (ii) it is needed to provide the court with information likely to be outside the court's own knowledge and experience; and (iii) the witness is competent to give that opinion".

> ***Expert evidence presented to the court should be and seen to be the independent product of the expert uninfluenced as to form or content by the exigencies of litigation.***

A key consideration is the duty of the expert, set out in r. 19.2(1), to "help the court to achieve the overriding objective" by giving opinion which is "objective and unbiased", and "within the expert's area or areas of expertise". This duty to the court "overrides any obligation to the person from whom the expert receives instructions or by whom the expert is paid" (r. 19.2(2)). Rule 19.2(3) goes on to state that this duty includes obligations:

"(a) to define the expert's area or areas of expertise –

(i) in the expert's report, and

(ii) when giving evidence in person;

(b) when giving evidence in person, to draw the court's attention to any question to which the answer would be outside the expert's area or areas of expertise;

(c) to inform all parties and the court if the expert's opinion changes from that contained in a report served as evidence or given in a statement; and

(d) to disclose to the party for whom the expert's evidence is commissioned anything –

(i) of which the expert is aware, and

(ii) of which that party, if aware of it, would be required to give notice under rule 19.3(3)(c)".

Rule 19.3(3)(c) was added by the Criminal Procedure (Amendment) Rules 2019 (SI 2019 No. 143). It requires an expert witness to disclose to the party by whom he or she is commissioned, and requires that party to disclose to each other party and to the court, anything that might reasonably be thought capable of undermining the reliability of the expert's opinion or detracting from the credibility or impartiality of the expert.

Section 30 of the Criminal Justice Act 1988 provides that an expert report is admissible as evidence in criminal proceedings, whether or not the person making it attends to give oral evidence but, if it proposed that the person making the report should not give oral evidence, the report is admissible only with the leave of the court (subs. (2)). When determining whether to give such leave, the court must have regard to: (a) the contents of the report; (b) the reasons why it is proposed that the person making the report should not give oral evidence; (c) "any risk, having regard in particular to whether it is likely to be possible to controvert statements in the report if the person making it does not attend to give oral evidence in the proceedings, that its admission or exclusion will result in unfairness to the accused"; and (d) any other relevant circumstances (subs. (3)). By virtue of subs. (4), an expert report, if

admitted, is "evidence of any fact or opinion of which the person making it could have given oral evidence". For these purposes, an expert report is a written report dealing wholly or mainly with matters on which the writer is "qualified to give expert evidence" (subs. (5)).

Expert evidence may be introduced in two ways. The first (under r. 19.3(1)) is to invite the other party to "admit as fact a summary of an expert's conclusions". A party seeking such an admission must serve the summary on the court and on each party from whom the admission is sought. The other party must (not more than 14 days after service of the summary) serve a response stating which, if any, of the expert's conclusions are admitted as fact and, where a conclusion is not admitted, what are the disputed issues concerning that conclusion (r. 19.3(2)).

The second way (under r. 19.3(3)) is to serve the expert's report on the court and each other party. Under r. 19.3(4), unless the parties otherwise agree or the court so directs, a party is not permitted to introduce expert evidence if that party has not served the report on the court and the other parties, and is not permitted to introduce into evidence an expert report if the expert does not give evidence in person.

> *An expert witness should provide independent assistance to the court by way of objective unbiased opinion in relation to matters within his expertise. An expert witness ... should never assume the role of advocate.*

The content of an expert's report is governed by r. 19.4. It must:

"(a) give details of the expert's qualifications, relevant experience and accreditation;

(b) give details of any literature or other information which the expert has relied on in making the report;

(c) contain a statement setting out the substance of all facts given to the expert which are material to the opinions expressed in the report, or upon which those opinions are based;

(d) make clear which of the facts stated in the report are within the expert's own knowledge;

(e) where the expert has based an opinion or inference on a representation of fact or opinion made by another person for the purposes of criminal proceedings (for example, as to the outcome of an examination, measurement, test or experiment) –

(i) identify the person who made that representation to the expert,

(ii) give the qualifications, relevant experience and any accreditation of that person, and

(iii) certify that that person had personal knowledge of the matters stated in that representation;

(f) where there is a range of opinion on the matters dealt with in the report –

(i) summarise the range of opinion, and

(ii) give reasons for the expert's own opinion;

(g) if the expert is not able to give an opinion without qualification, state the qualification;

(h) include such information as the court may need to decide whether the expert's opinion is sufficiently reliable to be admissible as evidence;

(i) contain a summary of the conclusions reached;

(j) contain a statement that the expert

understands an expert's duty to the court, and has complied and will continue to comply with that duty; and

(k) contain the same declaration of truth as a witness statement".

Paragraph 19A.4 of the Practice Direction refers to *R v Dlugosz* [2013] EWCA Crim 2; [2013] 1 Cr App R 32, where Sir John Thomas P said (at [11]) that:

"the court must be satisfied that there is a sufficiently reliable scientific basis for the evidence to be admitted. If there is then the court leaves the opposing views to be tested before the jury".

The importance of securing the services of an appropriate expert was emphasised in *R v Pabon* [2018] EWCA Crim 420 (at [77]), where the Court underlined "the need for those instructing expert witnesses to satisfy themselves as to the witness' expertise and to engage (difficult though it sometimes may be) an expert of a suitable calibre".

Paragraph 19A.5 of the Practice Direction sets out factors which the court may take into account when determining the reliability (and hence the admissibility) of expert opinion. These include:

"(a) the extent and quality of the data on which the expert's opinion is based, and the validity of the methods by which they were obtained;

(b) if the expert's opinion relies on an inference from any findings, whether the opinion properly explains how safe or unsafe the inference is (whether by reference to statistical significance or in other appropriate terms);

(c) if the expert's opinion relies on the results of the use of any method (for instance, a test, measurement or survey), whether the opinion takes proper account of matters, such as the degree of precision or margin of uncertainty, affecting the accuracy or reliability of those results;

(d) the extent to which any material upon which the expert's opinion is based has been reviewed by others with relevant expertise (for instance, in peer-reviewed publications), and the views of those others on that material;

(e) the extent to which the expert's opinion is based on material falling outside the expert's own field of expertise;

(f) the completeness of the information which was available to the expert, and whether the expert took account of

> ***An expert witness should state the facts or assumptions on which his opinion is based. He should not omit to consider material facts which detract from his concluded opinions.***

all relevant information in arriving at the opinion (including information as to the context of any facts to which the opinion relates);

(g) if there is a range of expert opinion on the matter in question, where in the range the expert's own opinion lies and whether the expert's preference has been properly explained; and

(h) whether the expert's methods followed established practice in the field and, if they did not, whether the reason for the divergence has been properly explained".

Paragraph 19A.6 goes on to say that, the court should be "astute to identify potential flaws in such opinion which detract from its reliability", for example:

"(a) being based on a hypothesis which has not been subjected to sufficient scrutiny (including, where appropriate, experimental or other testing), or which has failed to stand up to scrutiny;

(b) being based on an unjustifiable assumption;

(c) being based on flawed data;

(d) relying on an examination, technique, method or process which was not properly carried out or applied, or was not appropriate for use in the particular case; or

(e) relying on an inference or conclusion which has not been properly reached".

Paragraph 19B.1 of the Practice Direction sets out the terms of the statement and declaration required by r.19.4. It must include confirmation that the expert understands and has complied with their duty to the court to give "independent assistance by way of objective, unbiased opinion on matters within my expertise, both in preparing reports and giving oral evidence", and understands that this obligation overrides any obligation to the party by whom the expert has been engaged or to the person who is paying the expert; that the amount or payment of fees is in no way dependent on the outcome of the case; that there is no undisclosed conflict of interest; that the expert has "exercised reasonable care and skill in order to be accurate and complete" in preparing the report; that the expert has endeavoured to include in the report matters that "might adversely affect the validity" of the opinions expressed, and that any qualifications to that opinion are clearly stated; that the expert has not "without forming an independent

view, included or excluded anything which has been suggested" by others, including the instructing lawyers; and that the expert will notify those instructing if the report requires any correction or qualification; that the expert has read Part 19 of the Criminal Procedure Rules and has complied with its requirements; that the expert has acted in accordance with the code of practice or conduct for experts of the relevant discipline and, in the case of experts instructed by the prosecution, that the expert has read the guidance contained in the booklet entitled *Disclosure: Experts' Evidence and Unused Material*.

Rule 19.6 applies where more than one party wants to introduce expert evidence. The court may direct the experts to discuss the expert issues in the proceedings and prepare a statement for the court of the matters on which they agree and disagree, giving their reasons (r. 19.6(2)). A party may not introduce expert evidence without the court's permission if the expert has not complied with a direction under r. 19.6 (r. 19.6(4)).

Criminal Practice Direction V, section 19C, deals with these pre-hearing discussions. Paragraph 19C.1 requires the parties, in order to assist the court in the preparation of the case for trial, to "consider, with their experts, at an early stage, whether there is likely to be any useful purpose in holding an experts' discussion and, if so, when". Such pre-trial discussions are not compulsory unless directed by the court; however, "the court can be expected to give such a direction in every case unless persuaded otherwise".

Paragraph 19C.2 says that the purpose of discussions between experts is:

"to agree and narrow issues and in particular to identify: (a) the extent of the agreement between them; (b) the points of and short reasons for any disagreement; (c) action, if any, which may be taken to resolve any outstanding points of disagreement; and (d) any further material issues not raised and the extent to which these issues are agreed".

Once the meeting has taken place, the experts should produce a joint statement dealing with these matters (para 19C.6). If an expert significantly alters an opinion, the joint statement "must include a note or addendum by that expert explaining the change of opinion" (para 19C.8).

Where appropriate, the meeting may be conducted by telephone conference or live link. Indeed, such meetings should always "be conducted by those means where that will avoid unnecessary delay and expense" (para 19C.3). The parties should discuss and, if possible, agree whether an agenda is necessary and, if so, attempt to agree one that helps the experts to focus on the issues which need to be discussed. However, the agenda "must not be in the form of leading questions or hostile in tone. The experts may not be required to avoid reaching agreement, or to defer reaching agreement, on any matter within the experts' competence" (para 19C.4).

If the legal representatives attend the meeting, "they should not normally intervene in the discussion, except to answer questions put to them by the experts or to advise on the law"; moreover, "the experts may if they so wish hold part of their discussions in the absence of the legal representatives" (para 19C.5).

> ***An expert should make it clear when a particular question or issue falls outside his expertise.***

Rule 19.7(1) provides that, where more than one defendant wants to introduce expert evidence on an issue at trial, the court may direct that the evidence on that issue is to be given by one expert only. Under r. 19.7(2), where the co-defendants cannot agree who should be the expert, the court may either select the expert from a list produced by the co-defendants or else direct that the expert be selected in another way. Rule 19.8 provides that, where the court gives a direction for a single joint expert to be used, each of the co-defendants may give instructions to the expert; a co-defendant who gives instructions to the expert must send a copy of those instructions to each other co-defendant. Unless the court otherwise directs, the instructing co-defendants are jointly and severally liable for the payment of the expert's fees and expenses.

The Criminal Procedure (Amendment) Rules 2019 add a new rule to Part 19 (in force from 1 April 2019). The new rule 19.9 sets out the procedure to be followed where a party who introduces expert evidence wishes, in the public interest, to withhold part of what the expert witness could otherwise say (for example, information which would reveal confidential investigative techniques). A party who wants to introduce expert evidence but withhold some information from another party must apply to the court to decide whether it would be in the public interest to withhold that information. The application is served on the court but is served on the other party only to the extent that serving it would not reveal what the applicant thinks ought to be withheld (r. 19.9(2)). The application may be determined with or without a hearing (r. 19.9(5)). If there is a hearing, it must (unless the court directs otherwise) be in private and (if the court so directs) may be, wholly or in part, in the absence of the party from whom information has been withheld (r. 19.9(6)). At the hearing, the court will usually consider first representations by the applicant and then by the other party (in the presence of both parties), and then hear further representations by the applicant, in the absence of the party from whom information has been withheld.

The Inns of Court College of Advocacy has recently published *Guidance on the preparation, admission and examination of expert evidence*[1], containing helpful information on expert evidence in all cases (not just crime).

Detailed guidance on expert opinion evidence in criminal cases may be found in *Blackstone's Criminal Practice* 2019, section F11.4 et seq., and in *Archbold* 2019, section 10-35 et seq.

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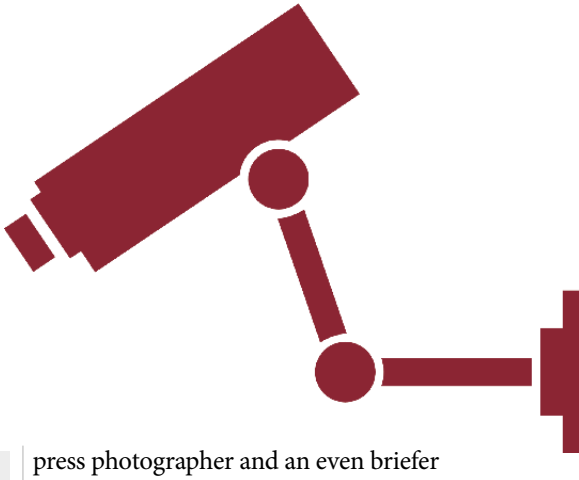
1 https://www.icca.ac.uk/images/download/expert-evidence/Expert-Guidance-final-copy-with-cover-2019.pdf

CCTV in the criminal justice system



History

In a little over two and a half decades, CCTV has become the backbone of almost all criminal investigations in the UK. From the grainy image of James Bulger to the last image of Holly Wells and Jessica Chapman, CCTV evidence is expected by the public and a Jury. When I first started in police imaging, all CCTV was on VHS tape and these tapes were used and reused. A good image was very much the luck of the draw, whether the system was in a corner shop or a council run city centre, enhancement was all but impossible beyond changing the brightness and contrast.

With an equivalent digital resolution of 335x576 Pixels questions like "can you get me the registration number?" had a very simple answer, "no". VHS tapes were expensive and those used for CCTV were used and reused until they fell apart. Generally, the image quality resembled the worse pirate video you have ever seen. For those too young to know what a pirate video is, think Pirate Bay download on a book-sized chunk of plastic.

By Stephen Cole

But this was the 1980's, and after studying photography and a brief dalliance as a press photographer and an even briefer stint as an advertising photographer, I found myself at my first crime scene in 1989. My career as a police photographer was almost accidental, driven my passion for photography and the need for a job that would allow me to stay in my beloved Yorkshire.

18 years and a number of very high profile cases later; the previously mentioned murder of Holly Wells and Jessica Chapman, the murder of two West Yorkshire police officers, Ian Broadhurst and Sharon Beshenivsky and the investigation and identification of the infamous John Humble (Wearside Jack) I and two colleagues identified

a need within the criminal justice system for an independent service, utilising our expertise in imaging and our experience of presenting this often complex evidence to the court. In 2004 we founded Acumé Forensic.

In 2019, VHS is very rarely seen in a modern British courtroom. A lack of foresight and general investment within the criminal justice system however means that much of the video evidence presented at court today often resembles the VHS of 20 years ago. I seek to explain why this is extremely concerning and is completely unacceptable in 2019.

What does it mean to have 'high-quality' CCTV?

Domestic CCTV systems costing a few hundred pounds can produce images in high definition. High definition, or HD, is any recording with a horizontal pixel measurement of (or above) 1,920 pixels. The most common iteration of this being a widescreen format of 1920 pixels x 1080 pixels.

These systems can often retain weeks worth high-quality video recordings. Most also have near-infrared capability, which means they can record good quality images in complete darkness.

Body worn video used by Police and private security is of a very similar quality to domestic CCTV systems that also includes high-quality audio recording. Millions of people carry mobile phones capable of producing recordings of 4k resolution, an astounding 3840 pixels x 2160 pixels. Most vehicle dash cams are at least HD quality. It would be expected that as these devices have become ubiquitous in our modern society, this high-quality media would and should find its way into the criminal justice system. Unfortunately, it does and it doesn't.

Why isn't high-quality media being used in the criminal justice system?

As both prosecutors and defenders, there are many problems you should be aware of.

These problems often start at the crime scene. Whilst many police services do have a policy for the careful handling of video evidence, many do not. Even where a policy exists, it is often forgotten or simply trampled over in the rush to secure CCTV Footage.

Real case example (Failings by the Police)

We have evidence that some of these accredited systems that have been recognised by accreditation bodies have failings that should invalidate the accreditation they hold, somewhat making a mockery of the entire process.

Acumé recently dealt with a very violent armed robbery where knives and firearms were used. The scene was a small corner shop. It had a brand new HD video system, the entire store being recorded on 8 cameras, all carefully placed covering all key areas.

The police spectacularly failed to properly secure the video evidence in this case. As a result no quantifiable facial identifications could be made from the video evidence.

The failures were numerous;

- The Officer tasked with the recovery of the video evidence, for reasons known only to himself, decided that a recording of the screen in the premise made on his personal phone would suffice for the retention of this potentially key evidence.

In 2019, VHS is very rarely seen in a modern British courtroom. A lack of foresight and general investment within the criminal justice system however means that much of the video evidence presented at court today often resembles the VHS of 20 years ago.

- The police CCTV unit tasked with processing this footage did not question the method of recovery and completely missed the opportunity to return to the scene to recover what is known as 'first generation' copies of the video.
- Processing material even as badly handled as this can still prove valuable evidence. A HD phone recording of a HD video on a screen does still have potential, however the next failure, (something that every UK police force routinely does on a daily basis), is the uncontrolled conversion of footage to DVD (VOB) files predominately for the CPS Egress system (Egress is the CPS Cloud based file sharing platform)

This case did result in positive clothing ID. This was however only because the original footage from the corner shop was such high quality. The both subjects could have potentially been identified had the CCTV footage been recovered in its original format.

The biggest issue we face when handling video evidence supplied from within the criminal justice system is the poor handling of the original CCTV. Unfortunately this is endemic and we witness poorly handled CCTV evidence everyday.

Conversions of footage to DVD (VOB)

Video compression is used in every CCTV system to ensure recordings can run for many days. This compression is controlled and balanced against the resulting image quality. There is no point having CCTV systems if the resulting recordings are so poor they will be of no evidential value.

CCTV recovery is a difficult process to manage. One of my roles whilst working at the Imaging Unit within West Yorkshire Police was to manage a small team of four full time staff, recovering CCTV evidence for the whole of West Yorkshire. Not an easy task.

Long before the establishment of ISO standards, we used the ACPO digital imaging procedure v2.1 (2007) as a guideline. First generation copies of the original unaltered CCTV footage would be retained as an exhibit master, and these would be stored on a WORM (Write Once Read Many) disc.

This very simple procedure ensured anyone in the evidence chain could return to or have an exact copy of the original.

When working for the defence, access to a copy of the master CCTV exhibit is a constant and relentless battle with both Police and the Crown Prosecution Service, both of whom display astounding ignorance to the importance of process. They will inform us that the very poorly produced DVD VOB (Video Object) file we have been given, which is often either missing hundreds of frames or has had several hundred added, is the master

There are many police forces that do employ high standards but this is not nationally adopted and sometimes the shear volume of material overwhelms and leads to poor standards.

and we should be very grateful of it. The Crown relies on CCTV evidence in almost all very high cost cases. Yet, certainly at case worker level as an organisation it has seemingly done very little to educate its staff with even some basic video handling knowledge.

CPS Egress

The CPS demand from the police CCTV 'in a viewable format'. Unfortunately, in all of the cases we have worked for the defence, this means a DVD formatted VOB file. DVD is now very old technology and the police (by converting footage to a DVD VOB file) are regularly 'throwing away' detail, changing frame rates and aspect ratios with abandon. We understand better than most the pressure of time, but pressures of time and volume do not excuse very poor practice. Especially where the detail that is being 'thrown away' could result in an unsafe conviction or ill-informed acquittal.

What is wrong with DVD?

DVD-Video is a consumer video format used to store digital video. In the early 2000's it was the most popular format of digital video. At its best it can store video files of 720 pixels x 576 pixels with 25 interlaced frames per second, mostly displaying a 4:3 aspect ratio, (remember when TV's were square not widescreen?).

With knowledge of compression and the limitations of the format, it can be used to provide results as good as an original CCTV recording if the original is also capturing video at 720 pixels x 576 pixels with 25 interlaced frames per second.

The problems begin as systems with 720 pixels x 576 pixels resolution capturing 25 frames per second are extremely rare. Much more common formats are:

- 352 pixels x 288 pixels (CIF);
- 528 pixels x 384 pixels (DCIF) and;
- 704 pixels x 288 pixels (2CIF).

Systems of this low resolution generally record at differing frame-rates, which could be anything from 1 frame per second to 30 frames per second. A frame-rate denotes the number of still images captured per second to make a moving image.

Interpolation (filling the gaps)

Converting any of these formats to a DVD VOB file will require interpolation of both the image file and the frame rate. For example, a CIF file has 101,376 individual pixels per still frame, generally captured at a frame rate of 15 frames per second, yet a standard DVD VOB file will have 414,720 individual pixels and 25 frames a second. In this example, this means a computer will generate 10 duplicate frames per second of footage and 313,344 pixels per individual frame that do not exist. So a one minute clip could potentially contain 600 still frames and 18 million pixels of information that did not exist when the recording was made!

> *DVD is now very old technology and the police (by converting footage to a DVD VOB file) are regularly 'throwing away' detail.*

Interpolation is never going to put a knife in someones hand, but it can easily be misinterpreted.

Far too often this unquantifiable converted and interpolated footage enters the evidence chain without any audited record of how it's been produced and this is invariably what is presented to the court as evidence, evidence which goes largely unchallenged.

Interpolated CCTV evidence is also regularly being used to conduct other 'forensic' processes including facial comparison, clothing and object comparison, vehicle comparison and photogrammetry. It must be understood that basing any opinion or conclusion on interpolated footage has no evidential value, measurements, comparisons or any interpretation is pointless. After any level of interpolation it is impossible to differentiate between a real pixel or a computer generated pixel, pixels that simply didn't exist at the point of recording.

Interpolated image

Original Interpolated (Bi-cubic)

With robust checks and balances CCTV can be used in all these comparison and analysis processes. Properly conducted image analysis can add evidential value to any visually recorded evidence. Unfortunately many of these checks and balances are not widely adopted or understood.

Downscaling

Downscaling is reducing a files image size to something smaller than the original recording. The use of this process is equally as worrying as interpolation. When applied to high quality footage, the police are regularly throwing information away when converting to DVD VOB files, for general sharing and particularly the CPS Egress system. Converting from a high resolution to a much lower resolution often also changes the aspect ratio which will further degrade the image quality.

CCTV imagery that in, its original format, could have been used to confirm or exclude identification by facial comparison, is no longer of a high enough standard to conduct this type of work. This clearly has serious implications for both the prosecution and defence position.

DVD_VOB downscaled image

Original Converted to DVD-VOB

Conclusions

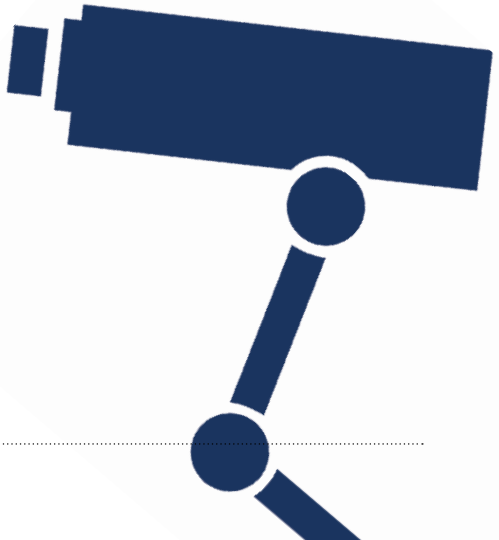
I have attempted to highlight the day to day issues we experience when independently dealing with video evidence for both our police and defence clients. There are many police forces that do employ high standards but this is not nationally adopted and sometimes the sheer volume of material overwhelms and leads to poor standards. This in turn results in video evidence being introduced that is either a much degraded version of the original or conversely an outwardly good quality version that is interpolated imagery which cannot be relied upon.

Robustly implemented National standards would be a step in the right direction however we have seen evidence of compromised processes achieving accreditation in video handling, so even this is not a workable solution as it currently stands.

I believe education is the only way forward. If more senior police officers, barristers, prosecutors, solicitors and case workers understood the impact of the poor handling of CCTV/Video material this national issue could begin to be addressed.

Remember the camera never lies.

Stephen Cole works at Acumé Forensic, a digital forensic company based in Leeds.



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The sentencing of mothers and the rights of the child

By Dr Shona Minson

I began my working life as a barrister, cutting my teeth with both family and criminal cases before developing a practice in public family law proceedings. When I moved into academia I was drawn to the overlap between crime and the family and for the past six years my focus has been on the rights of children whose mothers are before the court for sentencing. This article discusses the rights of such children, and the steps which should be taken in the sentencing of a primary carer, to ensure that those rights are upheld. It draws upon research evidence conducted with members of the judiciary, and with children affected by maternal imprisonment in England and Wales.

Children's rights and adult sentencing decisions

There is currently a dichotomy between the way the state treats children it separates from their parents in the family jurisdiction, and those it separates from their parents in the criminal jurisdiction. When a child is facing state-initiated separation from their parents in the family courts, as a consequence of public law proceedings where it is alleged that the child has suffered abuse or neglect at the hands of the parents, the proceedings take place within the legislative provisions of the Children Act 1989. The child's best interests are the paramount consideration of the court, the child has separate legal representation and has a Guardian ad Litem. In contrast, when a child is separated from their parents by the state as a consequence of parental imprisonment, it is possible that the court may not even know about the existence of the child. The child in both scenarios is a non-offending child who through no fault of their own is separated from their parent. In both situations the child has a right to respect for their family life and home, under Article 8 of the Human Rights Act 1998. In addition, the following articles from the United Nations Convention on the Rights of the Child, 1989, ratified by the UK in 1990, set out the rights of children facing separation from their parents.

Article 3 'In all actions concerning children whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration'

> *In contrast, when a child is separated from their parents by the state as a consequence of parental imprisonment, it is possible that the court may not even know about the existence of the child.*

Article 12 [a child] 'who is capable of forming his or her own views [has] the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child'

Article 20 'A child temporarily or permanently deprived of his or her family environment or in whose own best interests cannot be allowed to remain in that environment, shall be entitled to special protection and assistance provided by the State'

The differentiated treatment of children facing separation from their parent in the criminal courts contravenes both Article 14 of the Human Rights Act 1998 which confirms that rights should be secured without discrimination, and Article 2 of the UNCRC 1989 which makes it clear that children must not be treated differently or less well, because of their parent's behaviour:

'States parties shall take all appropriate measures to ensure that the child is protected against discrimination or punishment on the basis of the status, activities, expressed opinions, or beliefs of the child's parents'

It is clear that children's rights should be upheld when a primary carer is sentenced, and to do so the court must understand, firstly, the impact which a primary carer's custodial sentence will have on child dependents, and secondly, the parameters within which a sentencer can consider such impact. This article addresses each of these in turn.

The impact of maternal imprisonment on children

It is estimated that around 200,000 children are separated from their parents by imprisonment each year in England and Wales[1] and around 17,000 of those children lose their mother to imprisonment.[2] In my research I focused on imprisoned mothers, because as with the general population, it is more likely that mothers rather than fathers before the courts, will be the primary carers of their children. A child's life is more significantly disrupted if their primary carer is imprisoned. An example of this is that when a mother is sent to prison very few children remain in the family home[3] and only 9 per cent are cared for by their fathers[4] contrasting with the imprisonment of fathers, when most children remain with

1 Williams Williams, K., Papadopoulou, V., Booth, N. (2012) *Prisoners' Childhood and Family Backgrounds. Results from the Surveying Prisoner Crime Reduction Longitudinal Cohort Study of Prisoners Ministry of Justice Research Series 4/12.* London: Ministry of Justice Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/278837/prisoners-childhood-family-backgrounds.pdf

2 Howard League (2011) *Voice of a Child.* London: Howard League for Penal Reform

3 Caddle, D., Crisp, D. (1997) *Imprisoned women and mothers: Home Office Research Study 162.* London: Home Office

4 Corston, J. (2007) *The Corston Report, A Review of women with particular vulnerabilities in the criminal justice system p. 20* London: Home Office

their mothers in their home.[5] Until recently, due to a lack of research in England and Wales, it was difficult to provide evidence to a court of the likely short and medium term impacts of a mother's imprisonment on a child. However new studies have focused on children's experiences during their mothers' imprisonment[6] and these have found that the impacts of maternal imprisonment are far reaching and affect every area of children's lives.

The physical separation of parent and child

When separation occurs in an unexpected or unplanned way, for example at arrest or because of an immediate sentence without a delay for reports, it is deeply traumatising for children. Younger children became very confused by their mother's 'disappearance' and many children blame themselves for their parent's absence. The loss does not become easier as time goes on, and their missing parent is uppermost in their minds.

Change of home and carers

As far as we know (no data is routinely collected about children whose mother is imprisoned) most children move home when their mother goes into prison, moving in with friends or family. They often have multiple moves or live between two or more different homes. Siblings are separated, as often carers will take only one child. Some children are taken into local authority care.

Increased poverty

When carers take on pre-school age children whose mother has gone into prison they face a choice between giving up their jobs to care for the children, or paying high child care costs in order to allow them to continue to work. This impacts on their family finances, and often pushes families further into poverty. There is no state support, other than Child Benefit (£20.70 per week for first child in a family and £13.70 per week for subsequent children) for those who take on the care of children whose mother is in prison. Caring for a child is costly, as is acknowledged by the payments made to foster carers of £168-£282 per week (Surrey County Council, 2019). Those who care for children whose mother is imprisoned are given no additional financial support and they often face financial difficulties.

Disrupted Education

If a child moves home they may also have to move school. A child with a parent in prison is neither a 'looked after' child (s.22, Children Act 1989) nor a 'child in need' (s.17, Children Act 1989), and as such they are not given priority for school places. Consequently, many children whose mother is imprisoned spend a period of time out of education. Even if a school move is not necessary children find it difficult to concentrate on school work because of their worries about their parent. Press attention and widespread social media coverage mean that often children at school know about their mother's crime, and this can make attending school very difficult.

Social isolation: stigma and shame

Of the families I met during the course of research, none had any involvement with the criminal justice system prior to the mother's offending. In most cases the children did not feel able to tell anyone about their mother, and carers noticed

5 Boswell, G., Wedge, P., (2002) *Imprisoned fathers and their children.* London: Jessica Kingsley

6 Minson S (2017) Who cares? Analysing the place of children in maternal sentencing decisions in England and Wales. DPhil Thesis, University of Oxford, UK. Baldwin, L. and Epstein, R. (2018) Short But Not Sweet: A study of the impact of short sentences on mothers and their children. Oakdale Trust. Leicester. De Montfort University; Beresford (2018) What about me? The impact on children when mothers are involved in the criminal justice system, London: Prison Reform Trust Booth, N. (2018) Disconnected: Exploring provisions for mother–child telephone contact in female prisons serving England and Wales, Criminology and Criminal Justice

younger children being excluded from social gatherings e.g. children's birthday parties at school. A 16-year-old whose mother had been in prison for 3 years when I met him told me that I was the first person who had asked him what it was like for him to have a mum in prison.

Changes in the mother/ child relationship affecting future stability of child and creating severed attachments

On average women are held a long way from their home, with 1 in 5 held more than 100 miles away[7] and many families can't afford to take children to visit their mother. A study found that more than 50% of mothers in prison did not have any visits from their children.[8] Even if finance is available some prisons only have visits during school hours, which are inconvenient for school age children and carers who work during the day. Mothers may also choose not to see their children because visits are difficult for their children who have to undergo searches, be sniffed by dogs and endure long waits. There are restrictions on their behavior and usually the mother can't move so children can't play with her or hug her. Barbed wire and guards are frightening and the end of visits are re-traumatising for children particularly when they have to be forcibly separated from their mothers. A number of carers said the days after visits were terrible. Children try to protect their mother from their difficulties and so they become less open in their communication with her. The absence and difficulties of imprisonment alter relationships, and it is difficult to rebuild these after release.

Changed behaviours

Children who experience maternal imprisonment may exhibit new behaviours. My research found that children were diagnosed with attachment disorders stemming from their mother's imprisonment and many exhibited aggressive and threatening behaviour towards either their new carers or their peers at school. Sleep was disrupted and children refused to sleep alone. Behaviour and age appropriate development also regressed, at times in quite serious ways. More than half the caregivers described the children as angry, agitated, aggressive, violent, or having problems at school. In all cases the caregivers reported that the troubling and disturbed behaviour began after the mother's imprisonment.[9]

Diminished future outcomes

Globally, research has found that children who experience parental imprisonment as a child are more likely than their counterparts to have diminished future outcomes. They have an increased likelihood of criminal offending, mental health problems, drug/ alcohol addiction, to die before the age of 65, to earn less than their counterparts as adults, and to stop education at a younger age than is the norm.[10]

Impacts beyond the child

Caregivers are affected by maternal imprisonment, as taking on the care of the child of an imprisoned mother impacts on caregivers' health, finances, relationships, spouse and dependents, ability to remain in paid employment, and has high personal cost.[11] The result of this disruption and lack of resourcing is stress and strain which increases the risk of poorer outcomes for children.[12] None of the families who took part in my research had been asked by either Probation or the sentencer, prior to the sentencing decision, if they would care for the children. For many it came as a shock and completely turned their lives upside down. Unlike foster carers who are vetted and have to have a spare room, a supportive partner and family, and who are provided with a weekly grant, carers in this situation take on traumatised children with no support, financially or otherwise. Families go into debt to afford things like bedding and school uniform. Few people will say no to a request to take in a child, but it doesn't mean that child is welcome or will be sufficiently provided for. Children of the family may resent the incomers because of the increased costs the family must bear.

The parameters within which a sentencer can consider the impact on dependent children

The good news is that sentencers can and should consider the impacts on dependent children when they sentence a parent. In all Guidelines '*Sole or primary carer for dependent relatives*' is included in the *'non-exhaustive list of additional factual elements providing the context of the offence and factors relating to the offender*', which may *'result in an upward or downward adjustment from the sentence arrived at so far.'* The Sentencing Guidelines make particular reference to dependents even when the custodial threshold is passed. The *Imposition of Community and Custodial Sentences: Definitive Guideline*, Sentencing Council 2017 states that it may be appropriate to suspend a custodial sentence, or even to impose a non-custodial sentence, when "immediate custody will result in significant harmful impact upon others" or when "there would be an impact on dependents which would make a custodial sentence disproportionate to achieving the aims of sentencing." The recently published 'Child cruelty: Definitive Guideline'[13] goes further than any previous guideline. It has an added 'Stage Five: Parental responsibilities of sole or primary carers' which directs the sentencer as follows: 'In the majority of child cruelty cases the offender will have parental responsibility for the victim… Careful consideration should be given to the effect that a custodial sentence could have on the family life of the victim and whether this is proportionate to the seriousness of the offence.' The Sentencing Council have given more attention to the child in this instance because they also hold the status of 'victim' but I would suggest that if it is right to consider

7 Social Exclusion Task Force (2009) *Short Study on Women Offenders.* London: Cabinet Office and Ministry of Justice

8 Social Exclusion Unit (2002) *Reducing Re-offending by ex prisoners.* London: Social Exclusion Unit

9 Minson (2017) see note 6 above

10 This is just a sample of the literature on this issue: Hagan, J., Dinovitzer, R. (1999) Collateral consequences of imprisonment for children, communities and prisoners. *Crime & Justice, 26,* 121; Hagan, J., Foster, H., (2012) Children of the American Prison Generation: Student and School Spillover Effects of Incarcerating Mothers. *Law & Society Review, 46* (1), 37-69; Fox, G.L., Benson, M.L (2000) *Families, Crime and Criminal Justice.* Amsterdam, Oxford: JAI; Green, M., Scholes, M. (2004) Education for what? Attachment, culture and society. In Green, M., Scholes, M. (Eds.) *Attachment and human survival* (pp. 37–51) London: Karnac; Murray, J., Farrington, D. (2008) Effects of Parental Imprisonment on Children. In Tonry, M. (Ed.), *Crime and Justice: A review of research* (vol 37.) (pp.133-206) Chicago, IL; University of Chicago Press ; van de Weijer, S.G.A., Smallbone, H.S. & Bouwman, V. J Dev (2018) Parental Imprisonment and premature mortality in adulthood Journal of Life Course Criminology pp 1-14; Mears, D.P., Siennick, S.E. (2016) Young Adult Outcomes and the Life-Course Penalties of Parental Incarceration. *Journal of Research in Crime and Delinquency, 53*(1), 3-35

11 Turanovic, J.J., Rodriguez, N., Pratt, T.C. (2012) The collateral consequences of incarceration revisited: a qualitative analysis of the effects on caregivers of children of incarcerated parents. *Criminology, 50*(4), p.913; Raikes, B. (2016) Unsung Heroines; Celebrating the care provided by grandmothers for children with parents in prison. *Probation Journal, 63*(3), 320-330; Minson (2017) see note 6 above

12 Mackintosh, V.H., Myers, B.J., Kennon, S.S. (2006) Children of Incarcerated Mothers and their caregivers: factors affecting the quality of their relationship. *Journal of Child and Family Studies, 15*(5), 581 -196.

13 Sentencing Council, 2019

disruption to a child's life when they are the victim of the parent's offence, there is an even stronger case for giving careful consideration to the impacts of a custodial sentence upon them when their parent has *not* caused them any harm.

In addition to the Sentencing Guidelines there are a number of authorities which consider the point, the best known of these being *R. v. Petherick* [2012] EWCA Crim 2214 in which the Court of Appeal made it very clear that the best interests of dependent children are a "distinct consideration to which full weight must be given."

Principles established by case law include the following:

- The criminal sentencing of a parent engages the Article 8 right to respect for family life of both the parent and the child. Any interference by the state with this right must be in response to a pressing social need, in pursuit of a legitimate aim, and in proportion to that aim. The more serious the intervention the more compelling the justification must be – the act of separating a mother from a very young child is very serious.
  R(on the application of P and Q) v Secretary of State for the Home Department [2001] EWCA Civ 1151 paragraphs 78 and 87
- The welfare of the child should be at the forefront of the judge's mind.
  ZH (Tanzania) (FC) Appellant v Secretary of State for the Home Department [2011] UKSC4 paragraphs 25 and 26
- In a case which is on the threshold between a custodial and non-custodial or suspended sentence a child can tip the scales and a proportionate sentence can become disproportionate.
  R v Petherick [2012] EWCA Crim 2214 paragraph 22
- It may be appropriate to suspend a custodial sentence when the person being sentenced is the parent of dependent children
  R v Modhwadia [2017] EWCA Crim 501
- It is the court's duty to make sure that it has all relevant information about dependent children before deciding on an appropriate sentence.
  R v Bishop [2011] WL 84407 Court of Appeal

Judicial understanding of the importance of considering dependent children in adult sentencing decisions

In the research I conducted with Crown Court judges I found that there was inconsistent application of the guidelines and case law. In interview each judge was asked the question, 'Do you know of any sentencing guidelines or authorities which you would follow when determining the weight that should be given to a defendant's primary or sole caregiving status?'. Their responses ranged from certainty that the guidelines and authorities said nothing on the issue; to a belief that there were relevant authorities but either thought they did not apply in every case, or they prescribed that dependents should not be considered. Only 10 per cent of respondents mentioned the case of Petherick, and only 5% said that the welfare of a dependent child should be at the forefront of the judge's mind. None knew that the duty lay on the court to ensure that they had enough information about impact on dependents prior to passing sentence (as per R v Bishop, above). Three judges regarded consideration of dependent children as being contrary to 'justice' and believed that they should not take dependent children into account when sentencing mothers. In addition it became clear that sentencers are unaware of the impact of maternal imprisonment on children and therefore even when they try to consider the impact of a sentence on dependents they are unable to do so as they don't understand what it is they should consider. Of those who thought that the imprisonment of a primary carer would have serious consequences for the child, many took the view that 'not all children' were harmed by maternal imprisonment. In reaching that opinion they made a number of incorrect assumptions about factors which they believed influenced the impact.[14] It is important that Counsel are aware of the potential for these incorrect assumptions and have the evidence to counteract them so each is dealt with briefly below.

> ***Ultimately the lack of understanding of the impacts of maternal imprisonment on children, and misunderstandings about the duty of the court to consider dependents, is both a safeguarding and a rights issue.***

Age of the child

Judges believed that young children are most affected by the imprisonment of their mother. In reality children will be affected whatever age they are, but the impacts will be different. For children under the age of two they are likely to suffer a disrupted attachment with their primary carer which will have significant impact on their ability to form relationships. Young children over the age of two may develop insecure attachments as a consequence of the separation and will tend to become confused and saddened. Children of all ages experience grief, and the difficulties for adolescent children of losing their primary carer are different, but no less significant than for young children.

Criminal offending is the mark of a bad mother and indicates a poor mother/ child relationship

This opinion was repeated by many judges. Research in the US found that a child's experience of maternal loss is significant regardless of the criminality of the mother, particularly if she is the primary carer.[15] There will be instances when children are not receiving appropriate care, or the criminality is affecting the children, but in most instances the mothers are, at worst, good enough mothers.

Socio-economic status of the family

Some judges differentiated between children who had potential in life, and those that they deemed did not. They took the view that it was important to keep middle class families together, but not poorer families. They did not recognise their own bias and it is therefore important for those representing the defendant parent to address the court to ensure that such bias is not operational in sentencing.

Kinship care

Judges were generally troubled by the idea that children would go into care if their parent went to prison; they didn't want children to be separated from siblings, and they recognised that mothers might

14 Minson (2017) see note 6
15 Wakefield, S., Wildeman, C. (2014) *Children of the prison boom: Mass incarceration and the future of American inequality.* Oxford: Oxford University Press

struggle to reunite with the children after imprisonment. This highlights two problems. Firstly, judges did not recognise that even if looked after by a friend or relative, children are still likely to suffer harm, and the issues around sibling separation and post-release reunification remain. Secondly the recognition by judges of the disadvantage to children of being looked after within the care system seemed to lead judges to put pressure on women to come up with an alternative carer. Some said that if a woman told them there was no one to care for the children if she was imprisoned, then she was 'blackmailing' the court. Judges said that if told by a woman that there was no alternative carer they would ask 'who's looking after them today?' which seemed to imply that they equated the ability and availability of someone who could care for children for a couple of hours with someone who could take on a long period of full time care. These responses indicated that judges simply hadn't considered that women who are before the court may not have any adults in their lives who they both trust, and who have the physical or emotional resources to take on the full-time care of children who are not their own. One judge told me that they had taken on the care of a child when a family member died and implied that everyone would do the same. This mistakenly assumes that it is enough to care about the children; it overlooks the fact that wealth is a buffer to many hardships and often the families of those being sentenced will not have the means to support an additional child. When a judge puts pressure on a woman to produce an alternative carer her children may be moved to an unsuitable placement.

Ultimately the lack of understanding of the impacts of maternal imprisonment on children, and misunderstandings about the duty of the court to consider dependents, is both a safeguarding and a rights issue. Without properly considering what will happen to children if their primary carer is imprisoned there is a risk that children will suffer harm. This has been overlooked for too long, but there is an increased awareness that it is time for change.

In January 2018 a film series entitled 'Safeguarding Children when Sentencing Mothers' was released for sentencers, advocates, probation professionals and women facing sentence, setting out the ways in which criminal justice professionals can ensure that children are safeguarded. The film for advocates was made in association and with the support of the Criminal Bar Association. The film for sentencers is on the Judicial College Learning Management System and the film for probation staff is now embedded in court staff training. The Joint Committee on Human Rights are currently conducting an inquiry into the Right to Family Life for children whose mothers are imprisoned. However this is not a time for complacency. The recent Court of Appeal case of R v Myers [2018] (EWCA Crim 2191), concerned a mother who was sole carer of children aged 3 and 14. The trial judge revoked bail part way through the hearing (a decision which the Court of Appeal called 'questionable'), meaning that instead of leaving court at the end of the day with her 14 year old who was present at court, the mother was removed from the court to the cells. Unsurprisingly this caused enormous distress to both mother and child, and the child became emotional in the court. The next morning prior to the trial re-starting the judge made the child apologise to him for her behaviour and then warned her that any further emotional responses (even a facial movement) would result in her being taken to the cells. The trial judge, and the Court of Appeal did not seem to be troubled by the potential harms which could arise for a 14 year old and a 3 year old who were left without a carer with no warning. Although this was a case of remand rather than sentence, it is indicative that children's welfare is still not at the forefront of a jduge's mind when imprisoning a mother.

> *Ensure that you have found out whether or not your client is a parent, and what the situation is for his or her children.*

Action plan for Counsel

If you find yourself representing a defendant who is the sole or primary carer for dependent children you may wish to take the following steps.

- Ensure that the sentencer understands that Sentencing Guidelines and case law place a duty on the sentencer to consider the impact of the sentence on dependents.
- Request a Pre-Sentence report – if the sentencer is unwilling, simply suggest that there are safeguarding issues which need to be addressed.
- Ask the right questions of your client

Ensure that you have found out whether or not your client is a parent, and what the situation is for his or her children. If a mother of a young child – is she still breastfeeding? Are any children at important educational transition stages or public exams? Is there anyone who could take on their care – ask if that person is in good health, do they work, will they have to give up their job if they have the children, do the children know them, is there space in their house, will the children have to change schools. Do any of the children have additional needs or disabilities? For a full checklist see https://wp.me/P9ms7B-14

- Be mindful that local authority care should not be 'the tipping point'. It is important that sentencers understand that even if a child does not go into care it is likely that they will still suffer severe and perhaps irreparable harm when their mother is imprisoned.
- Remind the sentence that a 'short sentence' may seem like a good solution but even short sentences can harm a child's life chances if in that time they have suffered all the disruption I've mentioned previously. Furthermore, to a child, every day matters and for the same reason it is not right for sentencers to not consider children when a custodial sentence is inevitable. The length of sentence can be mitigated by the harm which the dependents will suffer, as the harm is not a single event when the mother is imprisoned, but is a series of cumulative harms over time, which continue until release and resettlement, and possibly beyond.

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