‘A CRITICAL GAP’: ADDRESSING THE RELIABILITY OF FORENSIC SCIENCE EVIDENCE

Tony Ward and Natalie Wortley, Northumbria University

1. Two US Reports
   1. National Research Council (2009) – pointed to lack of research to prove validity of many forensic disciplines
   2. President’s Council of Advisors on Science and Technology (PCAST) 2016 – some action to address NRC recommendations but validity remains ‘a critical gap’.
2. Validity (= ‘reliability’ in legal sense) according to PCAST
   1. Foundational validity of the method
      1. *repeatability* (consistent results from same sample)
      2. *reproducibility* (different analysts get same results)
      3. *accuracy* – with known rate of error
   2. Validity as applied – did the expert apply the method appropriately?
3. Valid and questionable sciences
   1. Valid (PCAST) – DNA (single source or simple mixture); fingerprints
   2. Validity not established (PCAST) – DNA (complex mixtures); footwear (identifying marks); firearms (toolmarks – but one substantial study supports); hair; bitemarks
   3. Other questionable disciplines include – handwriting, facial comparison, forensic podiatry.
4. Crim PR and Crim PD

CrimPR 19. 4 – expert’s report must:

(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;

‘a very important safeguard… it is particularly important that this rule is followed in the expert report obtained by the Crown’ – *Reed and Reed* [2010] 1 Cr App R 23 at [169]

Crim PD 19A.5 – factors to take into account 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

Court should be ‘astute to identify’ flaws such as: (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;

1. Controlling (but not excluding) expert evidence

*Reed* [2010] 1 Cr App R 23 at [121-2]: ‘care must be taken to guard against the dangers of [an] evaluation [based on experience] being tainted with the verisimilitude of scientific certainty…. It is … essential… that the court exercise a firm degree of control over the admissibility of this type of evidence …The evidence … must be clearly set out in full in the terms in which it is to be given’.

Part of evidence should have been identified as inadmissible.

*Dlugosz* [2013] 1 Cr App R 32 at [24]: *‘*provided it is made clear to the jury the very limited basis upon which an evaluation can be made … a jury can be assisted in its consideration of the evidence by an expression of an evaluative opinion …. It must be emphasised that the opinion expressed is quite different from the usual DNA evidence based on statistical match probability …[and] that, in contrast to the usual type of DNA evidence, it is of more limited assistance.’

*Henderson* [2010] 2 Cr App R 24 at [220]: ‘An overall impression can never be the substitute for a rational process of analysis. The jury are not required to produce reasons for their conclusion. Nevertheless, the judge should guide them by identifying those reasons which would justify either accepting or rejecting any conflicting expert opinion on which either side relies.’

*Luttrell* [2004] 2 Cr App R 31 at [42]: ‘The general principle … is that a “special warning” is necessary if experience, research or common sense has indicated that there is a difficulty with a certain type of evidence that requires giving the jury a warning of its dangers and the need for caution, tailored to meet the needs of the case. This will often be the case where jurors may be unaware of the difficulty, or may insufficiently understand it.’

NB CrimPR 25.14(2) – directions to be given ‘at any time at which to do so will assist jurors to evaluate the evidence’ – e.g. *before* they hear the expert (? more effective than directions at end of trial).

But the *Crown Court Compendium* does not encourage this or provide examples: ‘There is no invariable rule as to when a direction on expert evidence should be given. It is often best included in the legal directions at the beginning of the summing up; but … it may be preferable to give the direction immediately before the expert evidence is summarised.’

1. How effective are the traditional ‘safeguards’?
   1. Cross-examination – see (7) below.
   2. Jury directions – the *Crown Court Compendium* does not adequately address validity/reliability:

‘If an expert expresses his conclusions in relative terms (e.g. “no support, limited support, moderate support, support, strong support, powerful support”) it may help the jury to explain that these terms are no more than labels which the witness has applied to his opinion of the significance of his findings and that because such opinion is entirely subjective different experts may not attach the same label to the same degree of comparability.’

‘The jury should take into account [as appropriate] the qualifications/practical experience/ methodology/source material/quality of analysis/objectivity of the experts, and the impression they made when giving evidence.’

1. Why the lack of case law on CPD 19? Two hypotheses:
   1. Defence counsel rarely challenge expert evidence on ‘sufficient reliability’ grounds – prefer traditional *ad hominem* cross-examination (some anecdotal evidence).
   2. Trial judges are in fact controlling expert evidence in the way envisaged in *Reed* etc. (and/or prosecutors and experts are more cautious in the claims they make) – acceptable forms of words are agreed pre-trial so no need to challenge evidence on appeal. (No evidence, but seems possible.)

Further reading from the Northumbria Centre for Evidence and Criminal Justice Studies:

G. Davies and E. Piasecki, ‘No More Laissez-Faire? Expert Evidence, Rule Changes and Reliability’ (2016) 80 J Crim L 327

M. Stockdale and A. Jackson, ‘Expert Evidence in Criminal Proceedings: Current Challenges and Opportunities’ (2016) 80 J Crim L 344

T. Ward, G. Edmond, K. Martire and N. Wortley, ‘Forensic Science, Validity and Reliability: Advice from America’ [2017] Crim LR 357