



**Forensic Science  
Regulator**

## **Criminal Proceedings and the Use of AI**

**Using AI in forensic science – issues and challenges for setting  
quality standards and the presentation of evidence in court**

Gary Pugh

Forensic Science Regulator



# Forensic Science Regulator

## Forensic Science Regulation - Context

- Forensic science is a critical and important part of the investigation of crime and the administration of justice not only to identify offenders and provide expert evidence to the courts but it is one of the strongest safeguards against false allegation and wrongful conviction.
- Forensic science examinations carry substantial risks and the consequences of a quality failure can be profound particularly where there is a system rather than an individual failure.
- The purpose of forensic science regulation is to minimise the risk of a quality failure and ensure that accurate and reliable scientific evidence is used in the investigation of crime and criminal trials.
- Effective forensic science regulation will contribute to community confidence in policing and the criminal justice system.



# Forensic Science Regulator

## Forensic Science Regulator Act 2021- Main Provisions

### Preparation of a Code of Practice

- The Regulator must prepare and publish a Code of Practice about the carrying on of forensic science activities in England and Wales. (**Came into force on 2<sup>nd</sup> October 2023**)

### Status of the Code

- The code is admissible in evidence in criminal and civil proceedings in England and Wales.
- A court may in particular take into account a failure by a person to act in accordance with the code in determining a question in any such proceedings

### Investigation and Enforcement Powers

- The trigger for investigation is based on the Regulator having reason to believe that a person may be carrying on a forensic science activity to which the code applies in a way that creates a **substantial risk of—**
  - (a) adversely affecting any investigation, or
  - (b) impeding or prejudicing the course of justice in any proceedings
- The Regulator may issue a **Compliance Notice** requiring a person to take steps within a given period or by the date specified in the notice including prohibition from carrying on any forensic science activity.
- If the Regulator is satisfied that any step specified in the notice has been taken or does not need to be taken the Regulator must issue a **Completion Certificate**.



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## Regulatory Model for Forensic Science

- Requires organisations to have effective and accredited quality management system that ensures the quality, competence and technical validity of operational delivery and meets the requirements set out in the Forensic Science Regulator's Code of Practice, including;
  - validation including an understanding of uncertainty of measurement and error rates
  - defining and demonstrating competence of forensic practitioners
  - documented and controlled procedures
  - internal audit and assurance process.
- Organisational competence in the operation of quality management systems in forensic units in the UK is assessed by the United Kingdom Accreditation Service (UKAS) against international standards (eg ISO17025) and guidance.



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## Criminal Proceedings and the Use of AI in Forensic Science

- Communication of the relevance and significance of forensic science evidence.
- Analysis of complex forensic test results and robustness of method
  - Complex multi person DNA mixtures
  - Establishing whether a level of a drug in a driver's blood exceeds a specified limit
- Applications in current human based methods in forensic science
  - Interpretation of crime scenes as part of a criminal investigation; location of forensic traces, sequence of events, establishing of a crime has been committed, validating the account of suspect/witnesses/complainants
  - Identifying and verifying characteristics or features; friction ridge endings, damage to soles of footwear
  - Search or identification of potential candidates/suspects; fingerprints, face
  - Significance and evaluation of matches at source level; fingerprints, face
- Significance and evaluation of forensic science evidence at activity level; evaluating competing prosecution and defence propositions



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## Criminal Proceedings and the Use of AI in Forensic Science

### Issues and Challenges

- Role of the forensic practitioner
  - Are they in control?
  - Is there a shift to expert opinion being a product of artificial and human intelligence or entirely a product of AI?
- Future regulatory model
  - Can AI in forensic science be validated?
  - How are the risks or error or a quality failure be identified and mitigated?



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