Improving Service Delivery

The Forensic Science Service




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Preface

This report is one of four[1] which consider the action agencies are taking to improve the services they provide to the public.

The Forensic Science Service®[2], an Executive Agency of the Home Office, is key to the delivery of criminal justice and the deterrence of crime. Working from seven laboratories with 2,700 staff the Agency provides forensic science services to the 43 police forces in England and Wales, the Crown Prosecution Service and HM Customs and Excise. In 2001-02, the Agency analysed forensic evidence in some 135,000 cases, as well as 555,000 samples of DNA, of which 480,000 were added as profiles to the National DNA Database®[3].

Overall, the Forensic Science Service has made progress in improving its performance at a time when demand for forensic science analysis in criminal investigations is increasing significantly and forensic science is becoming more specialised and complex. However, the speed with which the Agency delivers its services remains a concern. The average time it takes to complete forensic testing reduced from 45 days in 1991-92 to 26 days in 1999-00, but increased again to 35 days in 2001-02, significantly above the national target of 24 days. Most users of the Agency's services rate them highly, but concerns remain about the time it takes to complete some forensic science casework. Performance also varied between the Agency's different laboratories. The Agency is seeking to address these issues through closer joint working with the police to forecast future demand for forensic science analysis, having sufficient staff with the right skills to handle the demand, and the implementation of a new operations management system.

The study analyses the timeliness, reliability and impact of the forensic services provided by the Agency. The report also highlights good practice drawn from the Forensic Science Service's experience, which other agencies might follow in the drive to improve public services.

1 *The other three related reports are Improving Service Delivery: The Veterans Agency (HC 522, 2002-03); Improving Service Delivery: The Food Standards Agency (HC 524, 2002-03); and a summary report Improving Service Delivery: The Role of Executive Agencies (HC 525, 2002-03).*

2 *The Forensic Science Service® is a registered trademark.*

3 *The National DNA Database® is a registered trademark.*

executive summary

In this section

1 Forensic science makes an essential contribution to criminal justice. In 2001-02, scientific analysis was used in 135,000 cases and 555,000 samples of DNA were analysed. The Forensic Science Service is responsible for providing impartial scientific analysis in support of the investigation and detection of crime, and for providing evidence to the Crown Prosecution Service and the courts. It is an Executive Agency of the Home Office, which agrees its key performance targets **(Figure 1)**.

1 The Forensic Science Service's performance against its 2001-02 targets agreed with the Home Office

Target	Achievement
Finance	
■ A ten per cent return on capital employed	✔ 12.9 per cent return
■ A minimum ten per cent efficiency gain (three-year rolling target)	✔ 10 per cent
Service delivery	
■ An average overall turnaround time of 24 calendar days	✘ 35 days
■ Meet agreed delivery dates in 97 per cent of urgent cases, 97 per cent of critical cases and 100 per cent of persistent young offender cases	✘ 94 per cent (urgent), 92 per cent (critical) and 90 per cent (persistent young offender)
■ Meet 93 per cent of agreed delivery dates in all categories of case	✘ 89 per cent
■ Put in place service level agreements with 90 per cent of police forces	✔ 92 per cent
■ Conduct a biennial customer satisfaction survey	✔ Achieved
■ Establish a baseline overall measure for putting into place routine and robust customer satisfaction measurement processes based on a transactional approach, and for demonstrating year-on-year improvements in police satisfaction	✔ Achieved
■ Maintain external quality accreditation to ISO standards	✔ Achieved
■ Fifty per cent accreditation of Reporting Officers to the Council for the Registration of Forensic Practitioners (CRFP)	✔ Achieved

Source: Forensic Science Service Annual Report 2001-02

2 The Agency employs 2,700 staff and has annual operating costs of £122 million. It is required to recover its costs from fees charged to its users, and in 2001-02 had an operating income of £128 million, of which over ninety per cent came from the 43 police forces of England and Wales. The surplus which remains after interest and dividends have been paid is re-invested in the business. Charges for forensic analysis are made either on a time basis (for example £110 per hour for crime scene attendance) or an item basis (for example £195 to search an item for body fluids).

How forensic science can be used to solve crimes: Three case examples

Case example one: Analysis of wood shavings to link a suspect to a burglary

A suspect wearing gloves on which there appeared to be wood shavings was arrested near the scene of a burglary. The Forensic Science Service was asked by the police to determine whether there were any wood fragments on the gloves and, if so, whether they could have originated from a damaged door at the scene of the crime. The police took a control sample from the door and provided this, along with the gloves, to the Agency. The structure of wood varies considerably and this is apparent when samples are examined microscopically. Scientists were able to recover wood fragments from the surface of the gloves and provide strong support for the allegation that the gloves had been in contact with the damaged door.

Source: National Audit Office

Case example two: Use of the National DNA Database to solve a murder in 1968

The National DNA Database and advances in forensic science techniques were crucial in helping to find the man who killed a schoolboy in 1968. Over the years, the Forensic Science Service tried a number of scientific techniques on medical samples and the boy's clothing but failed to obtain a DNA profile of the killer. In 1996, more advanced profiling was used and a DNA profile obtained, which was loaded onto the National DNA Database. Three years later an individual was stopped by the police on a drink-driving offence. A routine DNA mouth swab was taken and the resulting profile fed into the Database which gave a match against the 1968 crime scene stain. The man was jailed for life in November 2001 after pleading guilty to the murder of the schoolboy.

Source: Forensic Science Service Annual Report 2001-02

Case example three: Forensic analysis to identify drugs seized by the police

In 2001 the police entered a suspect's premises by warrant and seized over 500 tablets, other substances packaged in plastic bags and a set of electronic scales. The Forensic Science Service was asked to identify what the tablets and substances were and whether controlled drugs were packaged at the address in question. The Agency identified the tablets as ecstasy and the substances as various drugs including cannabis, heroin, crack cocaine and amphetamine. Evidence that the various substances had been in contact with the scales was also found. The suspect was charged with possession of Class A drugs with intent to supply.

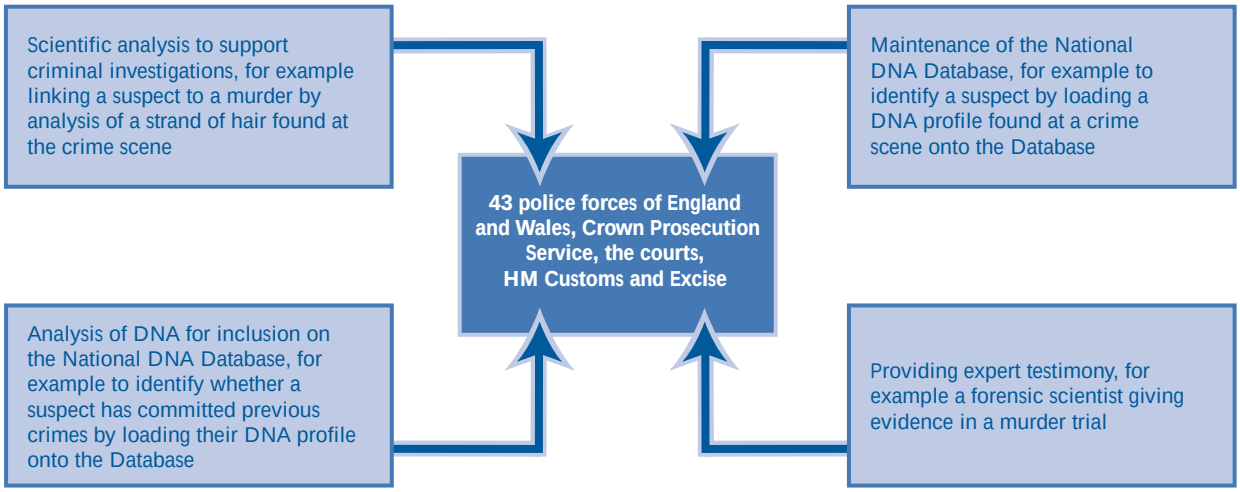
Source: National Audit Office

3 This report considers the progress the Forensic Science Service has made in implementing the recommendations which the Committee of Public Accounts made in 1999[4]. It also considers specifically the action which the Agency has taken to improve the support it provides to help meet the Government's commitment to tackle crime. The report highlights good practice which other agencies might adopt in the drive to improve the delivery of public services.

Services provided by the Forensic Science Service

4 The Agency supports criminal justice in four main ways **(Figure 2)**.

2 How the Forensic Science Service supports the criminal justice system



In addition the Agency carries out research and development, performs advisory functions to Home Office Ministers, and undertakes some private sector and international work.

Source: National Audit Office

5 The total number of cases received from the police has increased by 52 per cent since 1996-97, with evidence submitted for analysis in over 130,000 cases in 2001-02. The use of DNA profiling in particular has increased significantly and is now used in almost all serious crime cases. The Home Office has committed £182 million to enable police forces to increase the number of DNA profiles from suspects and crime scenes held on the National DNA Database, of which the Agency is custodian. In 2001-02, DNA profiling was used in approximately half of all cases received from the police compared to a quarter in 1997-98.

4 *The Committee of Public Accounts' report The Forensic Science Service (7th report 1998-99, HC 321) followed an NAO report The Forensic Science Service (HC 689, 2001-02). The action taken by the Agency and the Home Office in response to the Committee of Public Accounts' recommendations is summarised in Appendix 2.*

Findings

6 The Forensic Science Service is part of the larger chain of services which makes up the criminal justice system. If it fails to meet the needs of police forces as the principal users of its services, this can have an adverse impact on the delivery of criminal justice. We assessed the Agency's performance focusing on five key aspects.

If analysis is delayed or takes too long, a criminal investigation can be put at risk

7 **The time it takes to examine forensic evidence.** The average number of calendar days to complete forensic analysis has reduced significantly from 45 days in 1991-92 to 26 days in 1999-00 and 2000-01. In 2001-02, however, the average overall turnaround time rose to 35 days - significantly above the national target of 24 days. Our examination of a sample of 60 cases drawn from four laboratories found an average turnaround time of 45 days, with the highest being 133 days and the lowest two days. Turnaround times for analysis in support of the investigation of assault, murder, sexual offence and drugs cases all increased in 2001-02. The Agency attributes these increases to the 14 per cent rise in 2001-02 in the number of cases requiring forensic analysis, the length of time it takes to recruit and train new staff and difficulties in forecasting future demand. The average turnaround time for analysing suspect DNA samples for inclusion on the National DNA Database is now five days (compared to 350 days in March 1997), while demand is around 30,000 samples a month.

8 In 2000-01, the Agency achieved its target of meeting 90 per cent of agreed delivery dates for completing forensic casework analysis. In 2001-02 the Agency met 89 per cent of agreed delivery dates, failing to meet its (increased) target of 93 per cent. Performance varied between laboratories with Wetherby meeting 94 per cent of delivery dates, and Trident Court (Birmingham) 79 per cent. These differences may be explained by different caseloads handled by laboratories, different types of analysis carried out at laboratories and differences in the quality of evidence submitted by the police.

If the impact of forensic analysis is not carefully assessed, the work of the Agency could be misdirected

9 **The impact of forensic analysis in furthering criminal justice.** Almost half of cases in 2001-02 assessed by the Agency's scientists resulted in conclusive evidence to either associate or disassociate suspects with or from crimes, compared to 41 per cent in 1998-99. For speculative cases where there is no suspect, 72 per cent of forensic analysis demonstrated evidence of some intelligence value. A significant proportion of forensic analysis was, however, not assessed as to its effectiveness. The Agency does not normally receive feedback from the police and the Crown Prosecution Service as to the outcome of cases to which it has contributed, for example whether a suspect is acquitted or convicted.

If the quality and security of forensic analysis is not maintained, its value as evidence could be challenged

10 **The quality and security of forensic evidence.** Systems are in place to ensure the scientific quality of forensic evidence. In addition, the Agency is considering ways to focus its quality assurance arrangements more on managing the main risks to its core services. Security arrangements have improved since the earlier NAO examination in 1998. However, a clear desk policy was not operating at one laboratory, meaning that a small number of exhibits were not locked away out of working hours. In the year ending June 2002 there were 156 reported security breaches, a 37 per cent decrease compared to the previous year. The bulk of these were minor breaches.

11 **The users of forensic evidence being fully aware of the services which are available.** The Agency provides training for police forces and other customers to improve their understanding of forensic analysis including the use of DNA profiling. In general, police forces assessed the quality of training to be good but were less satisfied with its timing, and the suitability of certain aspects of it, for example the use of language which was too technical for those receiving the training to fully understand.

If police forces are not fully aware of the range of forensic analysis, possible opportunities to use forensic evidence may be missed

12 **The cost effectiveness of the Forensic Science Service.** Until 2001-02 the Agency's efficiency target was measured in terms of total cost per unit of output. A ten per cent efficiency gain over three years was met in 2001-02, but the Agency did not meet its target in five of the last eight years (in 1995-96, 1996-97, 1998-99, 1999-2000, and 2000-01). From 2002-03 the Agency intends to measure cost effectiveness in terms of value added per £1 of staff costs which will take into account the revenue generated by forensic analysis as well as costs. In 2001-02 this was £1.09 and is forecast to increase to £1.14 in 2002-03.

If testing is not carried out cost effectively, resources could be used unproductively

13 Overall, the Forensic Science Service has made progress in improving its performance at a time when demand for its services is increasing significantly. The large backlog of DNA samples which existed in 1997 has been eliminated. Balancing demand for its services and capacity to meet this is one of the key challenges faced by the Agency, not least to enable it to improve turnaround times for completing forensic science casework and meet agreed delivery dates. The Agency has introduced a priority system to deal with more urgent cases and, in August 2002, new national turnaround targets for different categories of forensic analysis were introduced. The Agency, nevertheless, does rely on police forces to provide it with regular and, as far as possible, accurate information on the likely number and types of cases they expect to submit for analysis. This requires good communication and the Agency now has Joint Letters of Understanding with 42 police forces setting out the predicted volume and types of cases for the coming twelve months.

Recommendations

14 We make five main recommendations to support the Forensic Science Service in its drive to continue to improve its performance.

1 Reducing the time it takes to turn around forensic casework and achieve more consistent performance across laboratories and police forces is essential to achieve the Government's commitment to tackling crime. The Agency needs to consider further ways of reducing the time it takes to complete forensic analysis, focusing in particular on: (i) ensuring that it has sufficient staff with the right skills to meet demand for its services; (ii) ensuring that the police understand how forensic evidence should be submitted so that its quality is not impaired and that supporting information is complete; (iii) achieving a more equal and appropriate distribution of casework across all laboratories; and, (iv) ensuring that casework is sent in the first instance to the laboratory with the best capacity to analyse it. The Agency should also draw on its monitoring of laboratories' performance to identify opportunities to re-engineer processes to increase the throughput of casework.

2 The Agency works closely with the police to support criminal investigations but a consistent concern of police forces is that the Agency does not routinely notify them if a deadline for completing casework will not be met. In some cases this can put criminal investigations at risk or delay significant lines of enquiry. The Agency should set targets for keeping police forces informed of progress, particularly with high risk cases, and monitor their achievement.

3 Assessing the effectiveness of casework is important both in terms of whether it provides conclusive evidence in support of an investigation or information of intelligence value. The Agency has a well-developed system for assessing effectiveness but it is not applied to all non-drug casework. This puts at risk the Agency's ability to identify opportunities to improve the quality of its services. More consistent assessments of effectiveness are needed.

4 The Agency has introduced a new operations management system and has enhanced how it measures cost effectiveness by focusing on value added per £1 of staff cost. This should more accurately capture all costs involved in delivering the Agency's outputs. The Agency should use the new technology to further develop its benchmarking of the costs of completing similar casework across different laboratories and to narrow the performance gap between laboratories. The new system should also be used to improve the Agency's workflow management.

5 The Agency is not routinely informed of the outcome of cases in which it has been involved. For example, it is not always informed by the police or Crown Prosecution Service when charges are not going to be brought against a suspect, nor whether a prosecution resulted in a conviction or an acquittal. Although the Agency measures the conclusiveness and intelligence value of its analysis, it has no awareness of its contribution to the criminal justice system overall. A mechanism whereby the Agency was routinely informed about its specific contribution to the outcome of individual investigations and prosecutions would help it better understand where it is meeting, or not meeting, its ultimate customers' needs.

Annex 1

The Forensic Science Service: Good practice in improving service delivery

Executive agencies are often at the forefront of delivering public services. Some have direct day to day contact with the public while others, like the Forensic Science Service, are an important part of a larger programme such as criminal justice. To be effective, the latter type of Agency has to work closely with other organisations which depend on their services. The Agency achieves this in ways that demonstrate elements of good practice which other agencies involved in similar service delivery chains should find useful. These include:

The need to work closely with other organisations in the programme delivery chain

The Forensic Science Service works closely with the police to meet the needs of the criminal justice system. The Agency and the police do not just have a supplier-buyer relationship. They are also partners in the criminal justice system (along with the Crown Prosecution Service, the courts and HM Customs & Excise). The Agency recognises this and works closely with the police on many levels to ensure that the impact of forensic science on the delivery of justice is maximised. Examples of such working together include partnership projects between the Agency and individual forces (for example the Burglary Reduction Initiative in Leeds), joint working groups between the Agency and the Association of Chief Police Officers (ACPO), and monitoring the effectiveness of forensic analysis in individual cases.

The need to have reliable information on the demand for services and ensure that sufficient resources with the right skills are in place

The Forensic Science Service recognises the importance of demand forecasting. The consequences of the Agency being unable to carry out forensic analysis on time can be serious in some cases, for example a suspect could be re-bailed. The Agency has recognised that the key to having the right resources in the right place at the right time is to have a reasonable expectation of future demand levels. To this end, a rigorous demand forecasting process was adopted in 2002. This involves all 43 police forces in England and Wales predicting the volume and types of cases they expect to submit to the Agency over the next twelve months. The figures are revisited at joint quarterly meetings. In this way, the Agency is able to predict demand on a national level, as well as by laboratory, by force and by service type. It is difficult to judge yet, but early indications show that demand can be forecast relatively accurately.

THE FORENSIC SCIENCE SERVICE

The need to ensure consistent performance by all parts of an organisation involved in delivering a national service

The Forensic Science Service monitors performance across its laboratories to ensure consistent performance and to spread best practice. A risk of providing a national service on a regional basis is that customers in different parts of the country may receive different standards of service. The Agency monitors performance across sites on a monthly basis to identify weaknesses at certain laboratories and best practice at others. There are regular meetings between both managers and scientists from different laboratories, and regular inter-laboratory visits. As a result of such close liaison between laboratories, changes have been made to the way certain types of analysis are delivered. For example, the quality of tool-mark analysis[5] was found to vary between laboratories. This analysis is now performed at only three sites, but to a higher overall quality standard.

The need to promote and encourage innovation to improve services

The Forensic Science Service has a rigorous business development process to help ensure the best use of limited resources. The Agency has a business development process which allows investment in innovation in line with corporate strategy and customer requirements. All new ideas, whether originating from customers or staff, are captured in the Opportunity Assessment Database. They are then evaluated in terms of outcomes and costs and a business case put forward to the Executive Board. If approved, resources are allocated and the Office of Government Commerce Gateway methodology is used to review the project. This ensures that expected outcomes are being achieved and costs are in line with budget. The automation of DNA analysis was introduced using this system.

The need to seek regular feedback from service users and re-engineer existing working practices as necessary

The Forensic Science Service surveys customers on what is important to them as well as their satisfaction. When surveying customers, the Agency asks not just what their satisfaction levels are with particular aspects of the service, but what their expectation of an excellent service would be. Areas with the largest gap between expectation and satisfaction are identified as priority areas for improvement. In this way, the Agency ensures it is targeting issues which really matter to the users of its services.

5 *The analysis of marks left at crime scenes to identify the weapon(s) or tool(s) used in perpetrating the crime.*