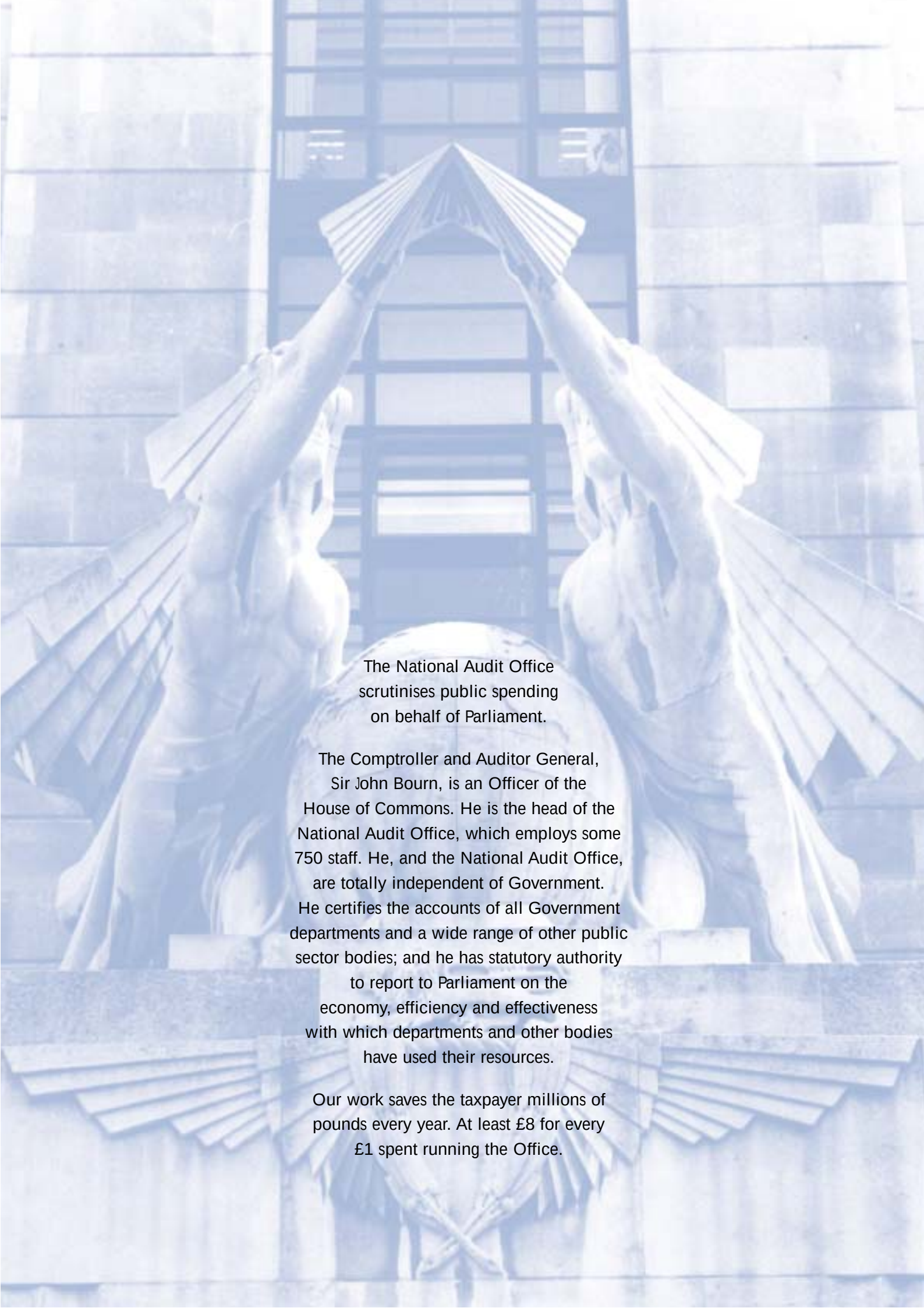
NATIONAL AUDIT OFFICE

Improving Service Delivery

The Forensic Science Service

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
HC 523 Session 2002-2003: 28 March 2003



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John Bourn
Comptroller and Auditor General

National Audit Office
18 March 2003

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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.

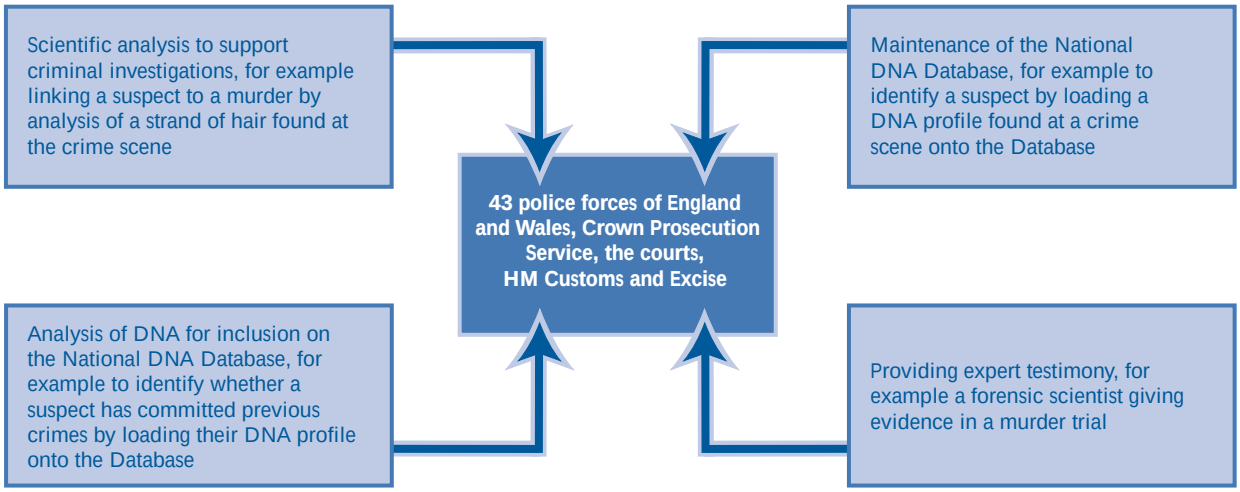
Source: National Audit Office

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.*

Part 1

Role of the Forensic Science Service

1.1 The successful delivery of criminal justice is increasingly dependent on science and technology. The Forensic Science Service works within the criminal justice system, providing impartial forensic scientific analysis in support of the investigation and detection of crimes, the prosecution of offenders and the prevention, deterrence and reduction of crime.

1.2 The Forensic Science Service is an Executive Agency of the Home Office and supports criminal justice in four main ways:

1 **Scientific analysis to support criminal investigations**
Analysis provided for 135,000 cases in 2001-02, of which 130,000 submitted by the police

2 **Maintenance of the National DNA Database**
Two million samples held on the Database by December 2002

3 **Analysis of DNA for inclusion on the National DNA Database**
480,000 samples from suspects and crime scenes were analysed in 2001-02

4 **Expert testimony in support of prosecutions**
3,000 court appearances by Agency scientists in 2001-02

1.3 In addition the Agency:

- **Carries out research and development** to enhance forensic science techniques and optimise the contribution forensic science can make to the investigation of crime;
- **Performs certain advisory functions to Home Office Ministers,** for example the assessment of forensic science providers, including the Agency itself and its competitors[6], to carry out blood alcohol testing;
- **Develops, assembles and distributes forensic science kits** and packaging materials to customers for the efficient and effective collection and protection of evidential material; and,
- **Undertakes some private sector and international work,** for example the testing of blood for drugs and alcohol on behalf of companies, and paternity testing for overseas clients.

Scientific analysis to support criminal investigations

1.4 The 43 police forces of England and Wales submit to the Agency evidence collected from crime scenes and suspects. Items typically include knives, glass, fibres, hairs, paint, drugs, footwear marks, bloodstains and other body fluids. The Agency's scientists analyse these in the context of the case and produce a witness statement setting out whether there is scientific evidence to link the suspect to, or eliminate them from, the crime. If such evidence exists, the witness statement also indicates how strong this evidence is. On receipt of the evidence the police may:

- Charge a suspect (if the evidence has linked the suspect to the crime);
- Carry out further investigative work (if the results were inconclusive); or
- Follow other lines of enquiry (if the evidence has eliminated the suspect from the crime).

1.5 The police may seek analysis of evidence for the presence of DNA. This can be extracted from blood, body fluids or hair found at crime scenes, or on items possibly linked to the crime, such as the suspect's clothes or a weapon. The use of DNA profiling in crime investigation has continued to increase significantly as more sophisticated scientific techniques are developed by the Agency, and police officers' awareness of its usefulness increases. DNA profiling is now used in almost all serious crime cases (such as assault and sexual offences) and is often used in less serious crime cases (such as burglary). In 2001-02, DNA profiling was used in approximately half of all cases received from the police, compared to a quarter in 1997-98. In addition, as scientific techniques develop, DNA analysis is being

6 *Chinese walls operate within the Agency to separate its advisory function from its provision of forensic science function.*

used increasingly to solve crimes committed up to 30 years ago (**see case example two on page 4**). A bloodstain the size of a stamp was required for a DNA profile to be obtained four years ago; a speck of blood much less than the size of a grain of salt is now sufficient.

DNA and DNA profiling

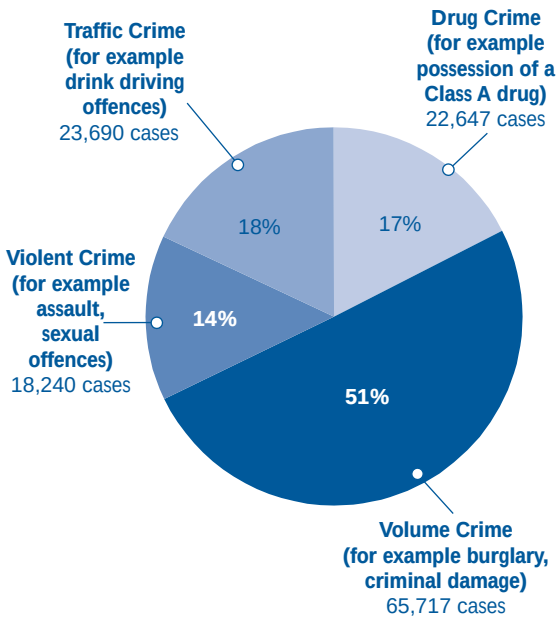
DNA stands for Deoxyribonucleic acid. This is a chemical found in virtually every cell of the body which carries genetic information to determine the physical characteristics of an individual. Except for identical twins, each person's DNA is unique.

The DNA profile of any one individual will be 99 per cent identical to that of another same-sex individual. The one per cent difference is what makes the individual's profile unique. DNA profiling focuses on this difference to create a unique profile for a given individual.

Source: National Audit Office

3 Half the cases received from the police for analysis in 2001-02 relate to volume crime (for example burglary and criminal damage)

Approximately half of the 130,000 cases received from the police in 2001-02 related to volume crime such as burglary and criminal damage. The remaining half was split relatively evenly between cases of violent, traffic and drug crime.



Source: Forensic Science Service Annual Report 2001-02

1.6 The scientific evidence analysed by the Agency provides part of the overall crime picture and is taken into account with other types of evidence, for example circumstantial evidence. It is rare for a suspect to be charged on the grounds of forensic evidence alone. 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[7]. Approximately half of these cases relate to volume crime such as burglary and criminal damage **(Figure 3)**.

Maintenance of the National DNA Database

1.7 The National DNA Database was established in April 1995 and was the first database of its kind in the world. The Agency operates the Database on behalf of the Association of Chief Police Officers (ACPO). The Agency's Chief Scientist, as the custodian of the Database, is responsible for assessing and recommending authorisation of any suppliers of DNA profiles to the Database. These include the Forensic Science Service itself (paragraph 1.10) and its competitors.

1.8 The majority of DNA profiles held on the National DNA Database are samples from suspects, but the Database also holds samples from crime scenes and, where the individual has consented, mass screenings **(Figure 4)**. The Database is an intelligence tool, and generates a "match" if a profile added already appears on it **(Figure 5** demonstrates some possible outcomes). By 2001-02 the number of matches of suspect to crime were just under 60,000 - 22 times the number achieved in 1996-97 **(Figure 6 overleaf)**.

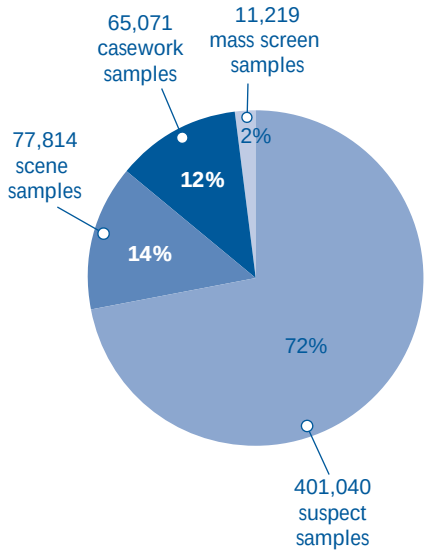
1.9 **The DNA Expansion Programme.** The Government's aim is to have the DNA profiles of all known active criminals on the National DNA Database. The Home Office has committed £182 million[8] to enable police forces to increase the number of DNA profiles from suspects and crime scenes on the Database. By December 2002 there were two million such profiles in total on the Database.

7 *In 2001-02 forensic analysis was carried out in 135,000 cases in total, of which 130,000 were submitted by the police.*

8 *A small proportion of this (£3 million) was provided to the Forensic Science Service to finance a national police training programme to support the DNA Expansion Programme, with the remainder going to the 43 police forces in England and Wales.*

4 DNA analysis performed by the Forensic Science Service in 2001-02

Of the 555,000 DNA samples analysed by the Agency in 2001-02, the majority (72 per cent) were suspect samples analysed for inclusion on the National DNA Database.



Suspect samples are non-intimate samples of DNA material taken from people suspected of, charged with, or about to be reported for, any recordable offence. They are submitted by police forces to the Forensic Science Service for analysis and inclusion on the National DNA Database. Since March 1997, following the Criminal Evidence (Amendment) Act 1997, samples have also been taken from prisoners convicted of certain categories of violent and other offences. Suspect samples are also referred to as CJ samples.

Scene samples are samples taken from unsolved scenes of crime (crime scene stains). Most are submitted by the police for inclusion on the National DNA Database to establish whether they match against any of the suspect profiles or other crime scene profiles held on the Database. Scene samples are also referred to as intelligence scene samples.

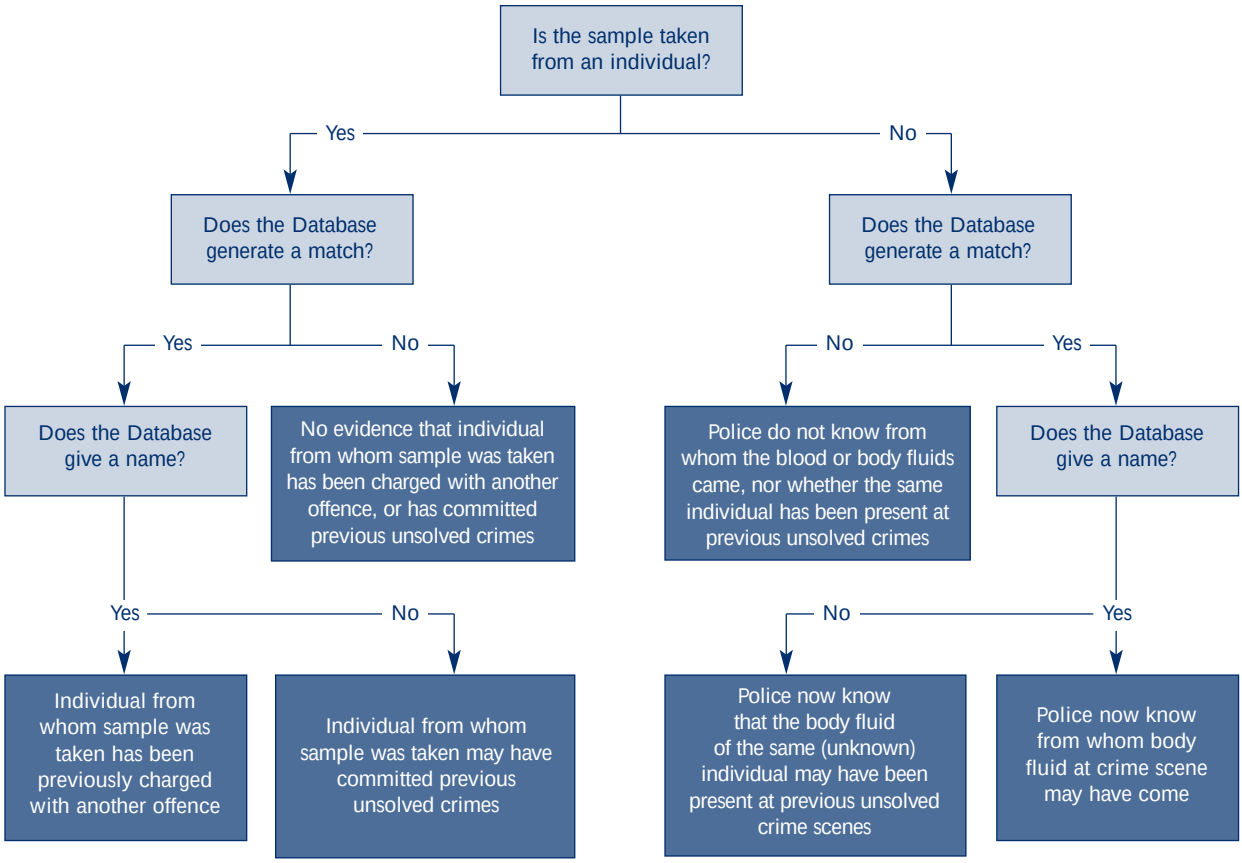
Casework samples are those submitted to the Forensic Science Service for DNA analysis as part of a criminal investigation in which the police are seeking to link a known suspect to the scene of a crime.

Mass screen samples are samples taken on a voluntary basis from individuals who have particular characteristics, in order to be compared to the DNA profiles taken from samples left at the scene of the crime under investigation. Except where a mass screen identifies an offender, or the individual gives their written permission, the Forensic Science Service does not include mass screen samples on the National DNA Database. Mass screenings are also referred to as intelligence-led screenings.

Source: Forensic Science Service

5 How the National DNA Database can be used

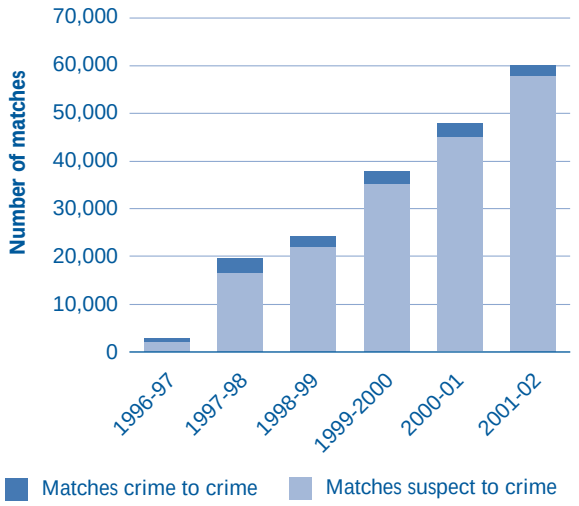
A DNA profile is created by analysing a mouth swab or hair roots from an individual, or body fluids left at a crime scene.



Source: National Audit Office

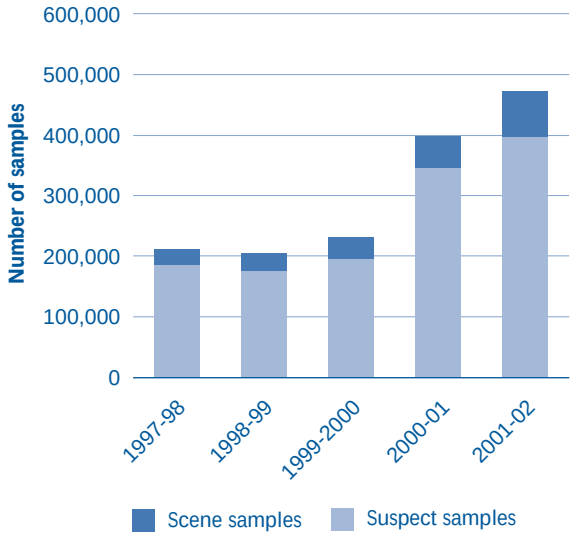
6 The number of matches generated by the National DNA Database grew considerably between 1996-97 and 2001-02

Twenty-two times the number of matches 'suspect to crime' were made in 2001-02 compared to 1996-97.



Source: Forensic Science Service Annual Report 2001-02

7 Suspect samples and scene samples received from the police for inclusion on the National DNA Database[9] have increased significantly since 1997-98



Source: Forensic Science Service

Analysis of DNA for inclusion on the National DNA Database

1.10 The Agency analysed 555,000 DNA samples in 2001-02 **(Figure 4)**, of which approximately 480,000 were added to the National DNA Database. The number of suspect samples and scene samples analysed by the Agency for inclusion on the National DNA Database has increased significantly since 1997-98 **(Figure 7)**, largely as a result of the DNA Expansion Programme (paragraph 1.9).

Expert testimony in support of prosecutions

1.11 If the police decide to proceed with a case and the Crown Prosecution Service decides to prosecute, the witness statement produced by the Agency may be used in court and an Agency scientist may attend court to provide expert evidence. In 2001-02 Agency scientists attended court to give evidence on almost 3,000 occasions.

The role of the Home Office

The Home Office:

- Appoints the Chief Executive of the Agency;
- Determines the policies within which the Agency operates;
- Approves the Agency's annual corporate plan and business plan;
- Sets the Agency's performance targets;
- Monitors the performance of the Agency; and,
- Provides the Agency with loans and funds from the Home Office Research and Development Fund.

Source: National Audit Office

9 *These figures relate only to samples analysed by the Forensic Science Service and not those analysed by competitors.*

8 The Forensic Science Service: financial performance 1998-99 to 2001-02

Year	1998-99	1999-00	2000-01	2001-02
Income (£000)	68,138	76,505	102,917	128,097
Expenditure (£000)	65,892	75,578	98,329	122,172
Surplus before interest and dividends (£000)	2,246	927	4,588	5,925

Source: Forensic Science Service Annual Reports 1998-99 to 2001-02

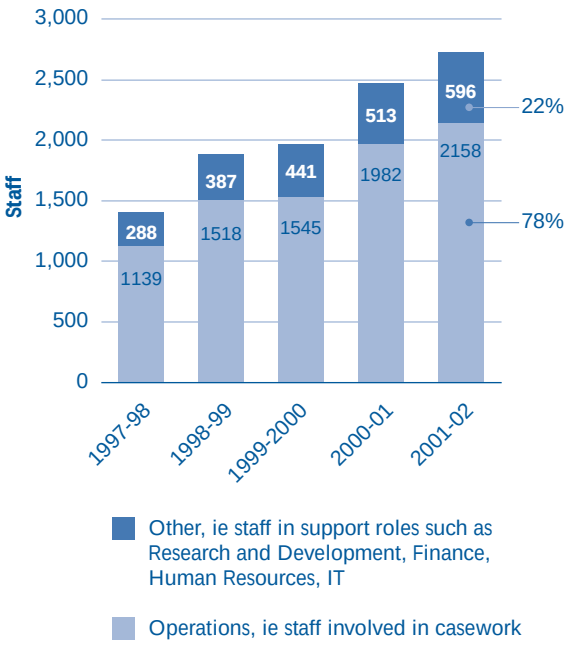
Organisation and resources of the Forensic Science Service

1.12 Since 1991 the Forensic Science Service has been an Executive Agency of the Home Office and its Chief Executive advises the Home Secretary on forensic science matters. On 1 April 1999 the Agency became a Trading Fund and is required to cover its costs from fees charged to users of its services and deliver a return on capital employed. The Agency has generated an operating surplus for each year since 1994-95 **(Figure 8).** This surplus is used to pay interest and dividends. The remainder, along with loans from the Home Office, is re-invested to improve and expand the business. Over 91 per cent of income (£117 million in 2001-02) is from the 43 police forces of England and Wales, with the Metropolitan Police Service accounting for 27 per cent of total income (£34 million in 2001-02). The remaining nine per cent (£11 million) comes mainly from HM Customs and Excise and the Crown Prosecution Service. The Home Office has commissioned a review of the Agency to consider the suitability of its status as an Executive Agency and a Trading Fund.

1.13 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).

1.14 The number of Forensic Science Service staff has doubled since 1997-98 to over 2,700, over 75 per cent of whom work directly on forensic analysis **(Figure 9)**.

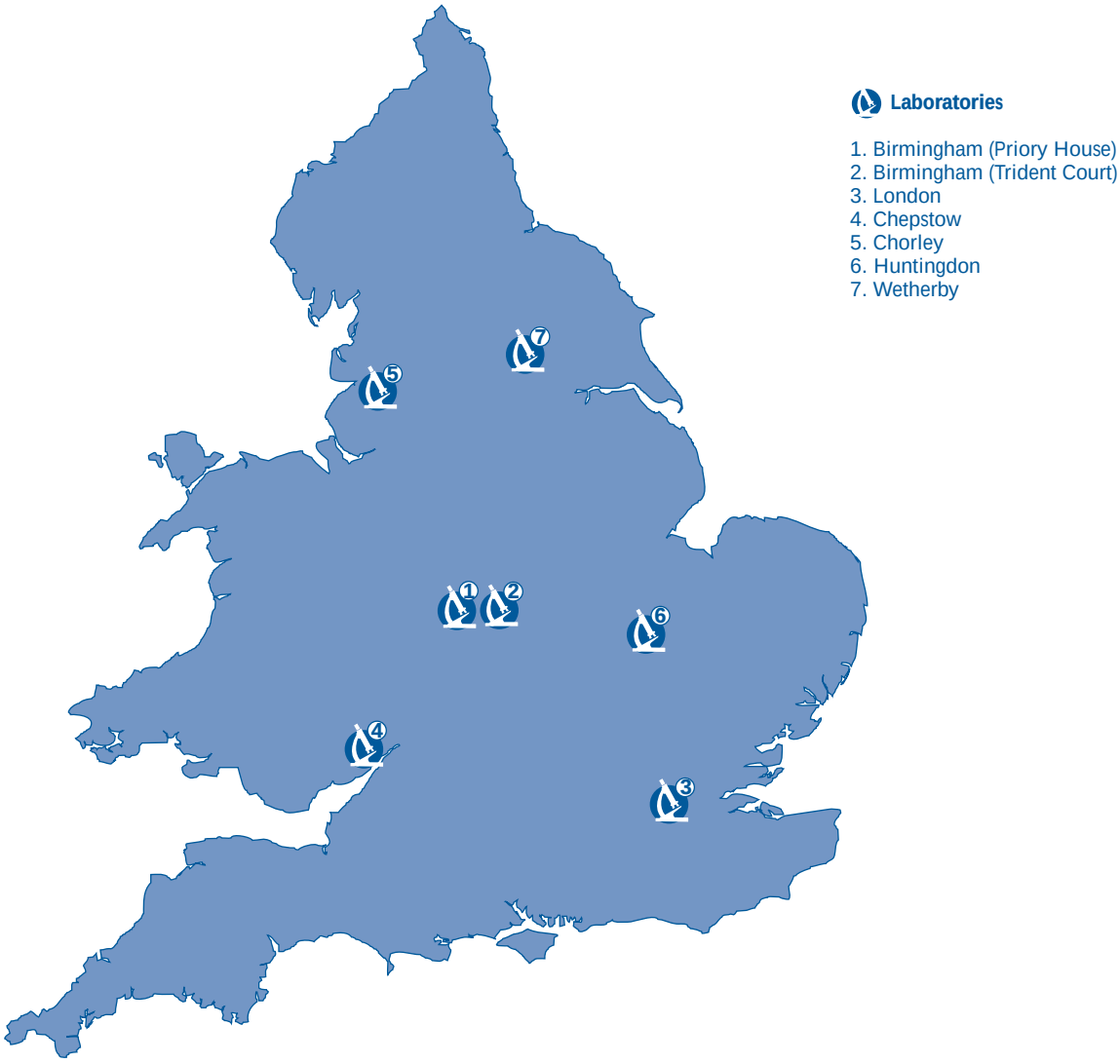
9 The number of Forensic Science Service staff has increased by 92 per cent since 1997-98



Source: Forensic Science Service

1.15 The Agency has seven laboratories across England and Wales **(Figure 10 overleaf)** providing a range of services. Some specialise in areas requiring specific equipment or expertise, which is not available in all the laboratories, for example the analysis of firearms. The London laboratory is the only site to offer the full range of forensic services. If a laboratory receives a case requiring a type of analysis which it cannot provide, the case will be transferred to an appropriate laboratory for the required analysis. In 2001-02, three laboratories (London, Chorley and Birmingham Priory House) processed 73 per cent of the cases handled by the Agency.

10 **The location of Forensic Science Service laboratories in England and Wales**



Source: National Audit Office

The market for forensic science services[10]

1.16 The Agency operates in a commercial market for forensic science to support crime investigation, which for England and Wales is valued at £160 million **(Figure 11).** The Agency competes against other forensic science providers, although it holds over 90 per cent of the overall forensic market[11]. Two private companies, LGC Ltd and Forensic Alliance Ltd, hold the majority of the remainder of the market. The Agency's market share varies for different types of crime. For example, the Agency has some 98 per cent of the market for violent crime cases and 83 per cent for the analysis of DNA for inclusion on the National DNA Database. It is difficult to estimate future growth in the forensic science market since it will be greatly influenced by the forensic budgets available to the 43 police forces in England and Wales. The Agency estimates that growth could be up to sixty per cent over the next five years due to factors such as increased awareness of the contribution forensic analysis can make to the investigation of crime, and technological advances in forensic science.

10 The information in this paragraph is taken from the Forensic Science Service's business and corporate plan.

11 The Agency's Framework Document (April 1999) states that "The FSS is, and should remain, the principal supplier of forensic science services to the police, a position supported by the Association of Chief Police Officers (ACPO). The availability at the present time of some competition from other providers however, provides a useful benchmark against which to judge the FSS's performance."

Other providers of forensic science services

Private sector

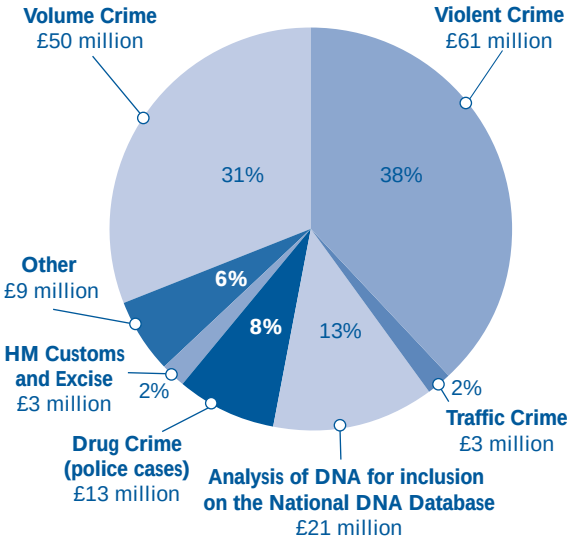
- Key competitors are LGC Ltd, Forensic Alliance Ltd and Orchid Biosciences/Cellmark Diagnostics;
- Approximately fifty companies specialising in certain niche markets such as fire scene or documents analysis;

Public sector

- Universities;
- Research establishments; and
- Police forces' own in-house forensic services.

Source: Forensic Science Service

11 Forensic science to support crime investigation has a market value of £160 million in England and Wales in January 2003[12]



Source: Forensic Science Service

1.17 England and Wales differ from many other countries in that the provision of forensic science services is through a dedicated agency[13]. Police forces in other countries retain a level of internal capability for forensic science support generally greater than that in England and Wales. The closest model is in Holland where the National Forensics Laboratory is moving towards agency status but is not yet organised as such. New Zealand and Australia have outsourced their DNA analysis and database control functions to government agencies, but Canada and the US have retained all their forensic work under the control of federal, state and county police services **(Figure 12 overleaf).** In the US there is also some outsourcing of DNA analysis to the private sector.

Focus of the NAO examination

1.18 The 1999 report by the Committee of Public Accounts made a number of recommendations to improve the performance of the Agency. These recommendations focused on how the delivery of services to the police could be improved, particularly with regard to the backlog of DNA samples awaiting analysis for inclusion on the National DNA Database. Our examination considered the progress which the Agency has made in implementing the Committee's recommendations. Appendix 2 summarises the specific action taken in response to each recommendation.

1.19 Executive agencies are often at the front-line of delivering services to the public, either directly or indirectly, as part of the wider supply chain of a public service. The Forensic Science Service is a good example of the latter in that if it fails to deliver its key targets, this can have an adverse impact on the delivery of criminal justice. We looked specifically at the action the Agency has taken to improve the support it provides to help meet the Government's commitment to tackle crime. We also identified lessons and good practice which other agencies can draw upon to improve their service delivery.

1.20 Our examination consisted of two main types of analysis:

- Data on the timeliness and impact of the forensic services provided by the Agency; and,
- The views of those who rely on the Agency - the police, the Crown Prosecution Service and HM Customs and Excise - as to the quality of service they receive.

More detail on our methodology is provided in Appendix 1.

12 The definition of the forensic science market used here takes into account traditional laboratory-based forensic science only. Widening this definition to include very specialist types of forensic science (such as analysis of computers and mobile telephones), the market is valued at approximately £175 million, of which the Agency estimates it holds a 78 per cent share.

13 Forensic science services for the criminal justice system in Scotland are currently provided by the Scottish Police Service from four in-force laboratories.

12 How forensic science services are delivered in other countries

United States of America

There are over 250 forensic science laboratories, a mixture of state, county and private sector. Overarching this, the Federal Bureau of Investigation (FBI) Laboratory also carries out forensic science in the USA. The FBI Laboratory provides free forensic and technical services to federal, state and local law enforcement agencies across the USA. Material is accepted relating to all crimes under investigation by FBI field offices. State and local law enforcement agencies can only submit material relating to violent crime and the FBI does not routinely accept evidence from property crimes unless there is evidence of an attempt to cause injury. Analysis is done on materials ranging from firearms and explosives, to blood samples and biological material from crime scenes. Laboratory specialists provide expert witness testimony in court cases where forensic work provides evidence regarding a case. The organisation also aids domestic and international law enforcement agencies with large-scale investigations and disasters.

A criminal DNA database has been established by the FBI Laboratory under an initiative called the Combined DNA Index System (CODIS). CODIS enables federal, state and local crime laboratories to exchange and compare DNA profiles to link crimes and individuals. CODIS was developed in 1990 to serve 14 state and local laboratories and has expanded since to include all but six states.

Canada

Forensics in Canada is controlled nationally by the Royal Canadian Mounted Police (RCMP). Forensic services in the RCMP date back to the 1930s and presently there are five regional laboratories in Vancouver, Edmonton, Regina, Winnipeg and Halifax and a nationwide headquarters in Ottawa. These offices can each carry out alcohol detection, forensic biology, forensic chemistry, document and firearms analysis, toxicology and automated systems analysis, with support from photographics and the scientific information centre which are both based in Ottawa.

Canada's DNA database is under the jurisdiction of the RCMP. Legislation allowing development of the service came into operation in June 2000. The database is housed in the RCMP's headquarters in Ottawa and is involved in helping to identify or eliminate suspects and crime linking. Currently the database holds around 30,000 offender DNA profiles.

Source: National Audit Office

Holland

Dutch forensic science originated after World War II with the establishment of a national laboratory, which was merged during 1999 with the National Forensic Pathology Unit to form the Netherlands Forensic Institute (NFI). The NFI is part of the Ministry of Justice and is an autonomous service with the aim of becoming a distinct government agency in the near future. A budget of 30 million is available for work, which focuses on forensic casework, research and development and acting as a national forensics authority.

The NFI provides a wide range of forensic services, including DNA analysis, fingerprints, speech recognition and firearms work. A national and international network of contacts with research institutes and universities to exchange knowledge, consultation and research techniques, is maintained by the organisation.

Europe

The European Network of Forensic Science Institutes (ENFSI), was developed in 1992 to provide a forum where the directors of Western European forensic laboratories could discuss research and development techniques while expanding forensic knowledge. The organisation meets yearly and has previously discussed themes including Communicating Forensic Expertise, Implications of Expert Reports on Judicial Sentences, and Research and Development in the 21st Century.

The ENFSI has external links to organisations around the world so that ideas and techniques can be communicated quickly to improve the general global standard of forensic investigation. The Forensic Science Service plays a key role in ENFSI, and it also has links with the American Society of Crime Laboratories Directors (ASCLD) and the Senior Managers of Australia and New Zealand Forensic Laboratories (SMANZFL).

New Zealand

New Zealand forensics is managed by two organisations. The New Zealand Police carry out basic forensic testing and analysis on areas such as fingerprint, document and firearms examination and environmental research. DNA and advanced forensics have been contracted out from the police service to a self-contained public sector agency called Environmental Science and Research Ltd (ESR), which provides the police with a comprehensive technical service. This includes managing a databank of DNA samples (launched as a joint venture between the New Zealand Police and ESR in 1995), plus the analysis of illicit drugs, bodily fluids, physical evidence and blood tests. The New Zealand Police can use the ESR as a one-stop shop, able to provide a range of testing and operational assistance to aid in solving cases and the production of new evidence.

Australia

Each of Australia's six states and two territories has its own forensic science provider and the system is different in each. Some states have highly integrated services, either provided by the police or by the state government. In other states, provision is much more fragmented. In Western Australia, for example, the police provide scenes of crime, fingerprint and firearm services, while forensic chemistry is provided by Ministry of Mines laboratories and forensic pathology by the Department of Health. SMANZFL (Senior Managers of Australia and New Zealand Forensic Science Laboratories) acts as a vehicle for national interaction and communication on forensic science management issues.

DNA database facilities currently exist in various levels of sophistication in all jurisdictions. A national project to coordinate intelligence provision, known as CrimTrac, is nearing completion. The major component is the national fingerprint system and a national DNA database.

Source: National Audit Office

Part 2

Performance achieved by the Forensic Science Service

2.1 The effectiveness of the Forensic Science Service's contribution to criminal justice depends on:

- The time it takes to examine forensic evidence;
- The impact of forensic analysis in furthering criminal justice;
- The quality and security of forensic evidence to minimise the risk that it is lost, damaged or contaminated;
- Users of forensic evidence being fully aware of the services which are available and how they can contribute to criminal justice; and,
- The cost effectiveness of the Agency's forensic science services.

2.2 This part of the report assesses how well the Forensic Science Service meets these requirements. It also considers how the Agency monitors and assesses the quality of service which it provides to its users.

The time taken to examine forensic evidence

If forensic analysis is delayed or not available when required, suspects may have to be bailed or re-bailed; the police may not pursue other lines of enquiry where forensic science analysis would lead them to eliminate a strong suspect; in extreme circumstances charges may have to be dropped; court cases may have to be re-scheduled or prosecutions may go ahead without important forensic evidence.

2.3 **Figure 13** sets out the key stages involved in collecting and analysing forensic evidence and its use in a criminal prosecution. In considering the time it takes the Agency to examine forensic evidence, two elements are relevant:

- The speed with which the Agency provides a response to requests for forensic analysis; and,
- The Agency's ability to meet delivery dates agreed with customers for providing forensic analysis.

2.4 It is important to consider both aspects of timeliness rather than solely the speed of response, as agreed delivery dates differ depending on the type and urgency of the case, and both the police and the Agency need to prioritise demand for the analyses required. For example, the results of analysis of a particular item may not be available until some months after the item was submitted to the Agency, but the police may be satisfied with this if it is within the agreed delivery date. To assess whether timeliness has improved we considered:

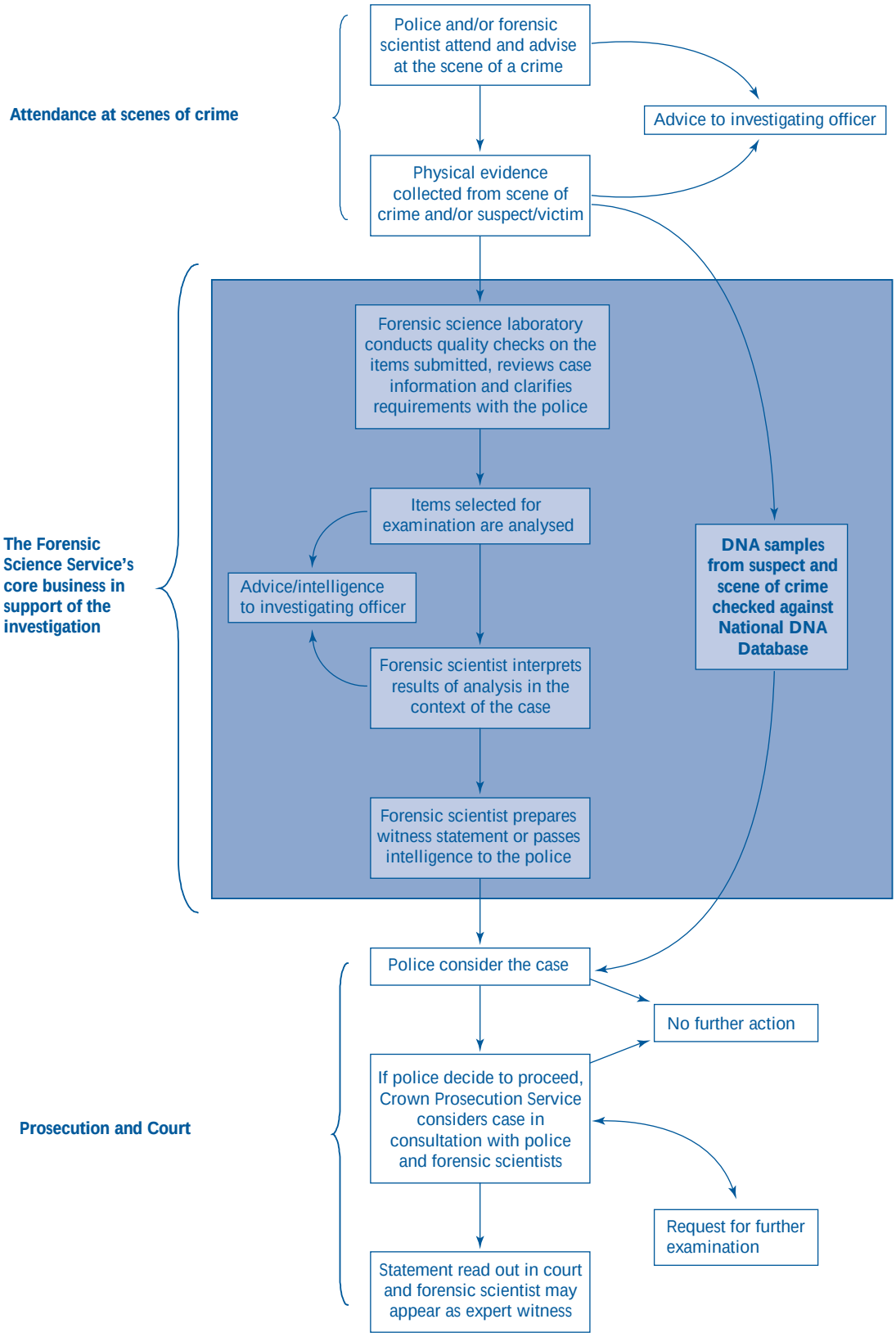
- Turnaround times for analysis of forensic evidence;
- The proportion of agreed delivery dates met; and,
- Whether the backlog of DNA suspect samples awaiting analysis for inclusion on the National DNA Database has been cleared.

In addition we examined how the Agency manages its workload to ensure that it provides forensic analysis when required, and the views of the users of forensic analysis on the timeliness of its delivery.

Turnaround times for forensic analysis

2.5 The length of time - the turnaround time - it takes for the results of forensic casework analysis to be available varies depending on the nature of the crime. For example, the turnaround time for a violent crime case (such as murder or sexual offence) tends to be longer than for a drugs case. This reflects the relative complexity of violent crime cases, where there is often a large number of exhibits to be analysed. Forensic analysis in drugs cases tends to be more straightforward (that is, the material is either a drug or it is not). When the NAO last examined the Forensic Science Service in 1998, the Agency did not set national standards for the length of time it should take to complete forensic analysis. Targets were instead set by each laboratory. One consequence of this was that police forces in some parts of the country received a faster service than others. Since 1999-00 the Agency has had a national target that the average turnaround time covering all types of forensic casework analysis

13 **Key stages in collecting and analysing forensic evidence**



Source: National Audit Office

should be 24 calendar days. The analysis of DNA for inclusion on the National DNA Database is not included in this target.

2.6 In 2000 the Agency introduced a priority system to deal with some cases more quickly than others. For "critical cases" there is a 42 calendar day turnaround time and for "persistent young offender" cases 21 calendar days. If these targets do not meet the needs of an individual case, it can be classified as "urgent" and allocated an earlier delivery date. The Agency makes no extra charge for these priority cases[14], but each police force is required to estimate annually the likely number of priority cases over the coming 12 months.

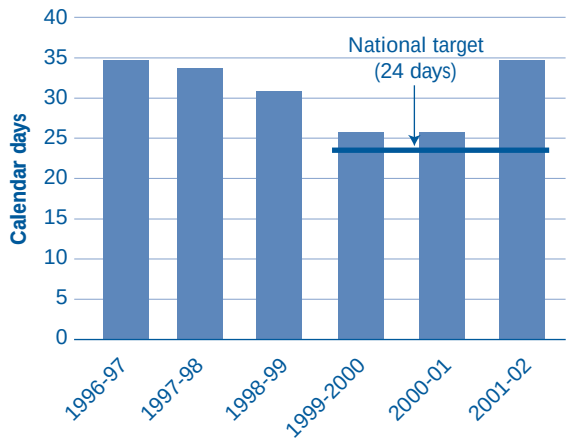
2.7 **Achievement** - The average number of calendar days to complete forensic analysis reduced significantly from 45 days in 1991-92 to 26 days in 1999-00 and 2000-01. In 2001-02, however, the average turnaround time rose to 35 calendar days, significantly above the national target of 24 calendar days **(Figure 14)**. The Agency attributes this increase to three main factors:

- **The length of time it takes to recruit and train new staff.** The Agency has doubled its workforce since 1997-98. One consequence of this is that staff have to be trained. It takes up to 18 months to train a forensic scientist. Recently trained officers also take longer to carry out forensic analysis and produce witness statements than their more experienced colleagues. In October 2002 90 staff (four per cent of the operational workforce) were undergoing training to become Reporting Officers[15];
- **Increasing workload.** In 2001-02 the 14 per cent increase in the number of cases requiring forensic analysis was the largest annual increase in the last five years. Suspect samples for inclusion on the National DNA Database also continued to rise steadily - a 16 per cent increase compared to 2000-01. Demand continues to rise for a number of reasons, for example increased police awareness of the value of forensic analysis, more sophisticated scientific techniques (particularly with regard to DNA), increasing numbers of Scenes of Crime Officers recruited by police forces, and the Home Office funded DNA Expansion Programme; and,
- **Difficulties in forecasting demand.** Police forces find it difficult to forecast likely levels of future demand for the Agency's services, largely due to the unpredictable nature of the incidence of crime. As a result, some forces have underestimated their requirements in the past. Joint Letters of Understanding between the police and the Agency have been introduced in an attempt to bridge the gap between forecast and actual demand.

2.8 **Figure 15** shows the average turnaround times between 1999-00 and 2001-02 for forensic analysis in respect of different types of case. While all turnaround times reduced in 2000-01, those for drugs, assault, murder and sexual offence cases increased in 2001-02.

2.9 We undertook an independent assessment of the Agency's performance in terms of turnaround times by examining a random sample of 60 cases drawn from four laboratories. Our analysis found an average turnaround time of 45 calendar days, with the highest being 133 days and the lowest two days. Cases of violent crime had the highest average turnaround time (73 days) and drugs and HM Customs & Excise cases the lowest (19 days). This reflects the relative complexity of violent crime cases mentioned in paragraph 2.5. We

14 Average number of calendar days to complete forensic casework analysis (1996-97 to 2001-02)



Source: Forensic Science Service Annual Reports 1996-97 to 2001-02

15 Average turnaround time by type of case 1999-00 to 2001-02

Type of case	1999-00 calendar days	2000-01 calendar days	2001-02 calendar days
Burglary	31	25	25
Drugs	13	10	16
Assault	44	32	37
Murder	40	29	33
Sexual Offence	39	29	33

Source: Forensic Science Service

14 *The Agency does, however, provide fast-track services for a premium charge for DNA analysis.*
15 *Agency scientists who are qualified to sign witness statements and appear in court to give expert evidence.*

16 Target turnaround times set out in Joint Letters of Understanding (in calendar days)

Type of case	Target
Priority	**Meet delivery date in 100 per cent of cases within:**
Urgent	As agreed with the police
Critical	42 days
Persistent Young Offender	21 days
Non-priority	**Meet delivery date in 90 per cent of cases within:**
Drugs	35 days
Other	70 days
National DNA Database	**Achieve an average turnaround time of:**
Suspect samples	12 days
Crime scene samples	14 days
DNA match confirmation	14 days

Source: Forensic Science Service

noted that in almost all cases of violent crime, there was extensive communication between the forensic scientist and the police investigating officer, with significant findings and progress updates being exchanged by both sides at the earliest opportunity. This means that police officers can progress the criminal investigation in the light of the results of forensic analysis, without having to wait for a full witness statement[16].

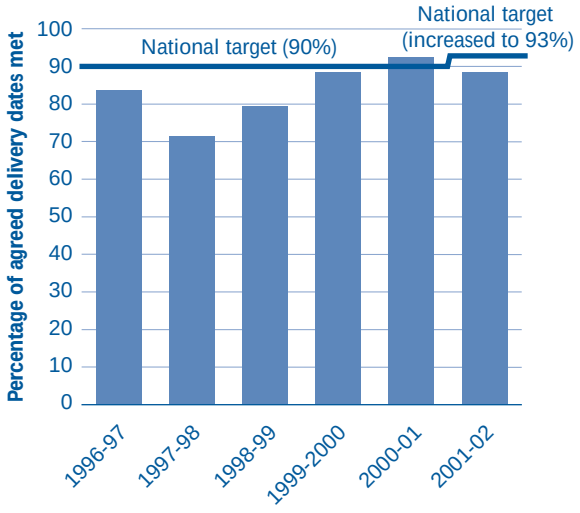
2.10 By August 2002 the Agency had introduced new national turnaround targets for different categories of forensic analysis **(Figure 16)**.

Meeting agreed delivery dates

2.11 The Agency's 2001-02 target was that 93 per cent of all forensic casework analysis should meet the delivery date agreed with the police. Prior to 2001-02 the target was to meet 90 per cent of forensic casework analysis by the agreed delivery date. The analysis of DNA for inclusion on the National DNA Database is not included in this target.

2.12 **Achievement.** The Agency first met the target in 2000-01 at 93 per cent and fell short of the target in 2001-02 at 89 per cent **(Figure 17)**. Performance varied between laboratories, with Wetherby meeting 94 per cent of agreed delivery dates, and Trident Court (Birmingham) 79 per cent **(Figure 18).** Performance also varied between police forces, from 96 per cent of agreed delivery dates met for one force to 85 per cent for another **(Figure 19)**[17].

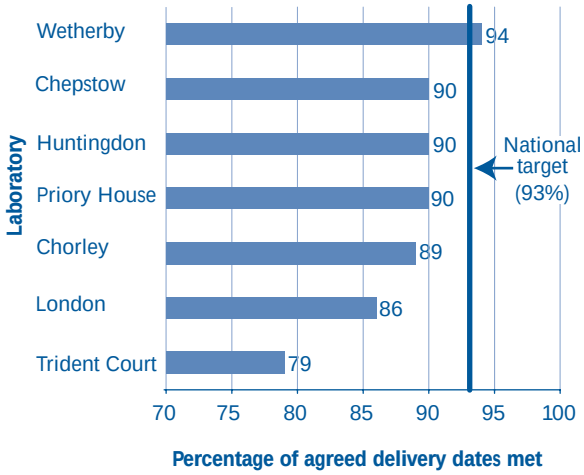
17 The Agency met 89 per cent of agreed delivery dates for completing forensic casework analysis in 2001-02



Source: Forensic Science Service Annual Reports 1996-97 to 2001-02

Differences in performance can be explained by such factors as the different caseloads handled by laboratories; different types of analysis (some more complex than others) performed at laboratories; the quality and volume of evidence submitted by different police forces; the extent and quality of communication between police forces and the Agency; and different mixture of crime types handled by police forces. The Agency has been more successful at meeting delivery dates for urgent and critical cases than for non-priority cases **(Figure 20 on page 28)**.

18 The percentage of agreed delivery dates met for completing forensic casework analysis varied between laboratories in 2001-02



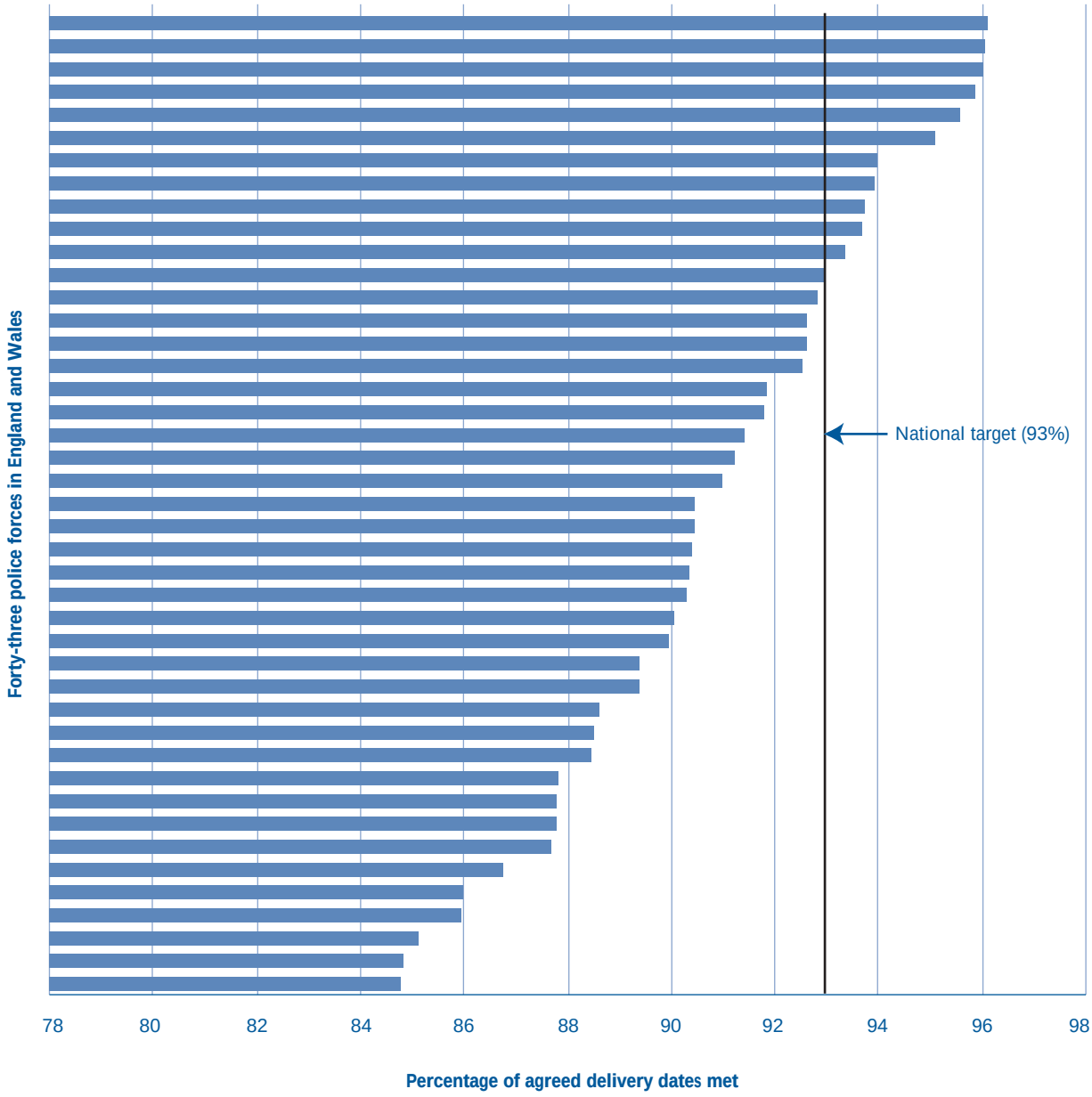
Source: Forensic Science Service

16 *A document produced by Agency scientists which sets out whether there is scientific evidence to link a suspect to, or eliminate them from, a crime and, if so, how strong this evidence is.*

17 *If processing of DNA scene samples for inclusion on the National DNA Database is included, the overall percentage of agreed delivery dates met is 83 per cent, with performance varying between laboratories from 99 per cent to 75 per cent, and between police forces from 94 per cent to 67 per cent.*

19 The percentage of agreed delivery dates met for completing forensic casework analysis varied between police forces in 2001-02

The percentage of agreed delivery dates met for completing forensic casework analysis varied between police forces in 2001-02, from 96 per cent for one force to 85 per cent for another.

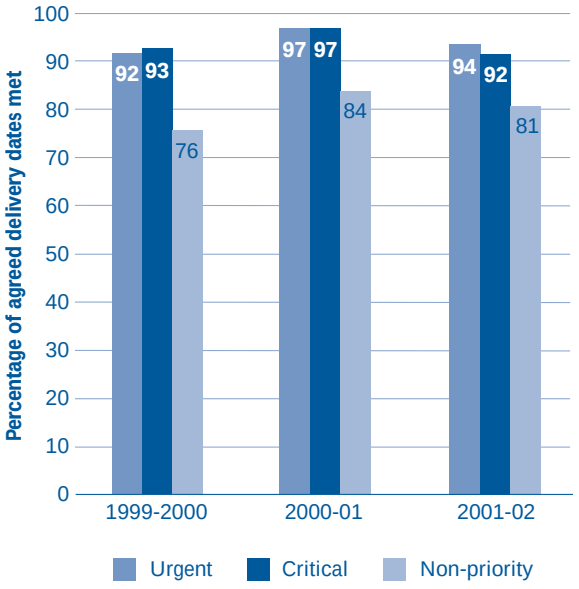


Source: Forensic Science Service

2.13 Of the 60 cases examined by the NAO, we found that the agreed delivery date was met in 75 per cent of cases. The Agency performed best at meeting delivery dates for drugs cases, where agreed dates were achieved in 20 out of 23 cases. It was not usually possible to determine from the case file why the agreed delivery date had not been met. Where this was possible, the most common reasons were an exceptional workload, the laboratory waiting for further police information, or the transfer of cases between laboratories. Cases may be transferred between laboratories if specialist services are required at an alternative laboratory (such as firearms analysis), or where another laboratory has a less heavy workload than the receiving laboratory. We found that in 70 per cent of the cases we examined where the agreed delivery date had not been met, there was no evidence that the police had been notified of the delay, nor the reason for it.

2.14 For 2002-03 the Agency has been set more challenging targets by the Home Office. Delivery dates should be met in 98 per cent of urgent cases, 98 per cent of critical cases and 99 per cent of persistent young offender cases. For all other cases the target is 93 per cent.

20 A higher proportion of agreed delivery dates were met in priority cases than non-priority cases between 1999-2000 and 2001-02



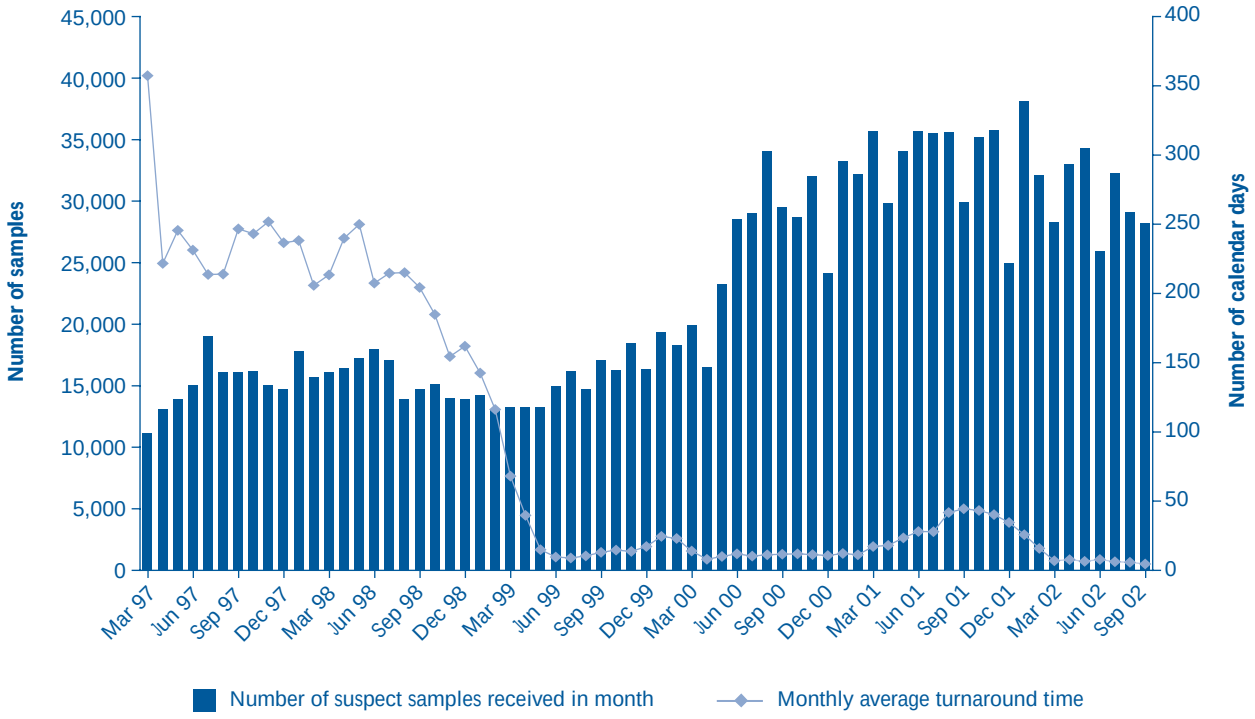
Source: Forensic Science Service

DNA suspect samples

2.15 The previous NAO report in 1998 found that a backlog of some 120,000 DNA suspect samples awaiting analysis for inclusion on the National DNA Database had built up by December 1997. The Agency estimated that the majority of these samples were taking approximately six months to process, with some taking over a year. The backlog was eliminated by March 1999. **Figure 21** shows that the demand for analysis of DNA suspect samples for inclusion on the National DNA Database continues to increase significantly and that the Agency has been successful in responding to this demand. The average turnaround time for suspect samples is now five days, while demand is around 30,000 samples a month.

21 Monthly demand and turnaround times for processing suspect samples for inclusion on the National DNA Database (March 1997 to September 2002)

In September 2002 the average time for processing a suspect sample for inclusion on the National DNA Database was five days compared to 350 days in March 1997, yet demand for this service had more than doubled in the same period.



Source: Forensic Science Service

Customer satisfaction with the timeliness of service received from the Agency

2.16 To examine how the Agency's customers - predominately the 43 police forces in England and Wales - viewed its performance in providing a timely service, we reviewed results of the Agency's own customer satisfaction surveys and examined the Agency's data on complaints. We also consulted four police forces, the Association of Chief Police Officers (ACPO), the Crown Prosecution Service and HM Customs and Excise.

2.17 In January 2002, the Agency conducted a customer satisfaction survey of over 2,000 police officers across all 43 forces in England and Wales. The survey found that police forces still had concerns about the speed with which the Agency delivered its services, and how the Agency notified them of delays. Two of the three top priority areas for improvement identified by the survey (where there was the biggest gap between expectation and satisfaction) related to timeliness. These were:

- The Agency's ability to meet agreed delivery dates; and,
- The Agency notifying the police when an agreed delivery date was likely to be missed.

2.18 The survey findings are borne out by the figures for customer complaints received by the Agency in 2001-02. One quarter of complaints received were about timeliness compared to 13 per cent in 1996-97. The police forces we consulted confirmed this position. The top issue for them was the scientific reliability of the forensic analysis. Both timeliness and cost were the next two most important factors. In most cases there is a balance between timeliness and cost, but in some cases (for example, high profile, serious crime cases) timeliness is the most important issue and outweighs cost. Three of the four police forces we consulted said that while the Agency endeavoured to provide a timely service, there were instances when this did not happen. One force said that the Agency provided a much timelier service for serious crime cases, but that performance for less serious crimes, such as burglary, was less satisfactory. The fourth force we consulted - the Metropolitan Police Service - was the most critical of the Agency's timeliness. In particular, it expressed dissatisfaction with turnaround times for serious crime cases. The Metropolitan Police Service pays a premium to ensure a seven day turnaround time for DNA analysis in volume crime cases, but stated that this was still not fast enough to support the force's own timeliness targets.

2.19 The Association of Chief Police Officers (ACPO) and the Crown Prosecution Service acknowledged that there were concerns about the Agency's timeliness, but that this was sometimes due to a breakdown of communication within the criminal justice system rather than being entirely the Agency's fault.

2.20 A particular concern of three of the four police forces we consulted was the Agency's turnaround time for evidential samples. If a match of DNA taken from a crime scene to DNA taken from a suspect is to be used as evidence in court, a second sample must be taken from the suspect to be re-checked against the crime scene stain. This second check, known as an "evidential sample", is taken to ensure that the match is valid and can be used as evidence in court. Often this is not necessary, for example if a suspect pleads guilty or charges have been dropped. Three of the four police forces we consulted told us that turnaround times for evidential samples were unacceptable, taking from 50 to 80 days to process and, according to one force, up to 125 days. For less serious crimes, such as burglary, the police cannot hold a suspect for more than 24 hours without bringing charges. If charges cannot be brought without a DNA match (that is, it forms a crucial part of the evidence against the suspect), the suspect has to be released and re-arrested when the DNA match becomes available. The Agency is aware of the need for improvement in this area.

How the Agency manages its workload

2.21 If the Agency is to be able to meet the increasing demand for forensic analysis within acceptable time periods, it needs to predict the likely volume and incidence of work and the types of analysis required. In doing this it should be better placed to ensure that it has enough staff with the right skills to handle the work. The Agency is very dependent, however, on police forces to provide reliable information on their likely demand for forensic science services. In December 1997, the Agency had service level agreements with four police forces and a formal contract with HM Customs and Excise which provided for this. In their earlier report, the Committee of Public Accounts recommended that these agreements be extended to include all police forces. The Agency now has Joint Letters of Understanding in place with 42 of the 43 police forces in England and Wales (the exception is the Metropolitan Police Service). These are not binding on either party but are a means by which the Agency can better understand its customers' likely requirements for the coming year. The Metropolitan Police Service has chosen, after a high-level independent review, to establish a more commercial relationship with the Agency and other forensic science providers, as a

means to achieve both strategic alignment with its policing priorities and best value. The Agency told us that they welcome this approach.

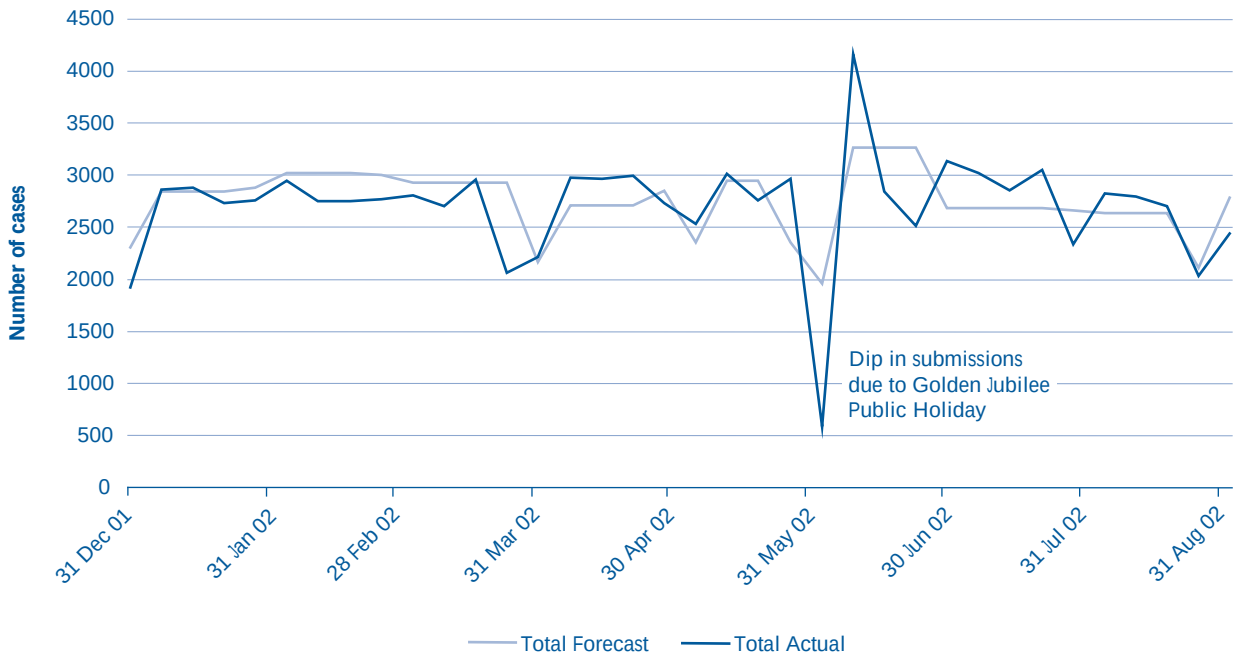
2.22 Each Joint Letter of Understanding requires the police force to set out the number of cases for each crime type and the number of DNA samples it expects to submit over the coming year. It is also required to estimate the proportion of cases that are expected to be urgent, critical, or relate to a persistent young offender case, as these require a quicker response. The Joint Letters of Understanding are monitored by the Agency and, if significant variances are found between predicted and actual submissions, these are discussed at quarterly meetings between the Agency and the police force. It may be necessary to amend future predicted submissions in the light of these meetings, for example where a force is experiencing an unexpected increase in a particular type of crime.

2.23 From the data contained in the Joint Letters of Understanding, the Agency is more able to forecast likely demand for forensic analysis - nationally, by police force, for each laboratory, and by type of crime. The police forces we spoke to welcomed the Joint Letters of Understanding. One force did, however, point out the limitations of such agreements, given the unpredictability of the incidence of crime. At August 2002 the police force in question had experienced 14 murders so far in the calendar year, compared to only one murder in 2001.

2.24 The Agency has been comparing actual demand for its services with forecast demand since January 2002, when Joint Letters of Understanding were introduced. It is difficult to assess how effective the Joint Letters of Understanding are as a tool to help the Agency manage its performance, but early indications show that demand can be forecast relatively accurately **(Figure 22)**. Balancing demand and capacity is one of the key challenges faced by the Agency, not least to enable it to meet agreed delivery dates. This has led, for example, to the introduction of seven day working patterns to achieve faster throughput. The recruitment and training of scientists remains a lengthy and costly process for the Agency and very specialist skills are required for some types of analysis. The more accurately the Agency can predict demand, the better placed it will be to have sufficient staff with the right skills to handle that demand. The forecasting of demand requires that police forces have reliable information on the incidence of different types of crime and, based on this, their likely need for forensic testing.

22 Since January 2002 the Forensic Science Service has compared actual demand for its services to forecast demand

On a national level demand can be forecast reasonably accurately. It is more difficult to predict demand at individual police force level, and some types of crime are harder to predict than others. For example the incidence of volume crime, such as burglary, is easier to predict than more serious crimes such as murder.



Source: Forensic Science Service

The Burglary Reduction Initiative in Leeds (BRIL)

This is an example of a partnership project between the Forensic Science Service and the police.

What was the aim of the project?

To reduce the incidence of burglary in the six Leeds Divisions of West Yorkshire police.

What did the FSS do?

The FSS provided a rapid DNA analysis of samples collected from burglary scenes, and provided a member of staff to work within West Yorkshire police to follow progress of DNA matches through the investigative process to judicial disposal.

What were the outcomes?

In March 2002 approximately 30 individuals were found guilty of burglary in the Leeds Magistrates' and Crown Courts and a further 49 had been charged and were awaiting court appearances.

Source: Forensic Science Service Annual Report 2001-02

Joint working with the police

2.25 The Agency also undertakes joint projects with individual police forces to tackle particular crime problems in their areas. The Burglary Reduction Initiative in Leeds (BRIL) is one example. Such joint projects often include:

- The Agency offering faster turnaround times than those set out in the Joint Letters of Understanding;
- The Agency offering a price based on the overall service provided (rather than on individual tests); and,
- A member of staff from the Agency being seconded to the police force to offer advice on which items to submit for forensic analysis and what the results of such analysis mean. Fifty Agency scientists have been seconded to police forces in the last four years.

The impact of forensic analysis in furthering criminal justice

If the impact of forensic analysis in furthering criminal investigations is not carefully assessed, there is a risk that the work of the Agency could be misdirected or opportunities missed to improve the quality and effectiveness of forensic science analysis.

2.26 On completing each casework analysis, the Agency's scientists assess the extent to which their work has assisted the police to further their investigations. They do this by scoring effectiveness in terms of the extent to which the forensic analysis was conclusive in supporting or refuting the link between the evidence and the suspect. The rating is on a scale of one to seven (see below).

Rating scale used to assess the effectiveness of forensic analysis

1	4	7
Conclusive evidence to eliminate a suspect from association with the scene of the crime	Inconclusive evidence to either associate or disassociate a suspect from the scene of the crime	Conclusive evidence to associate a suspect to the scene of the crime

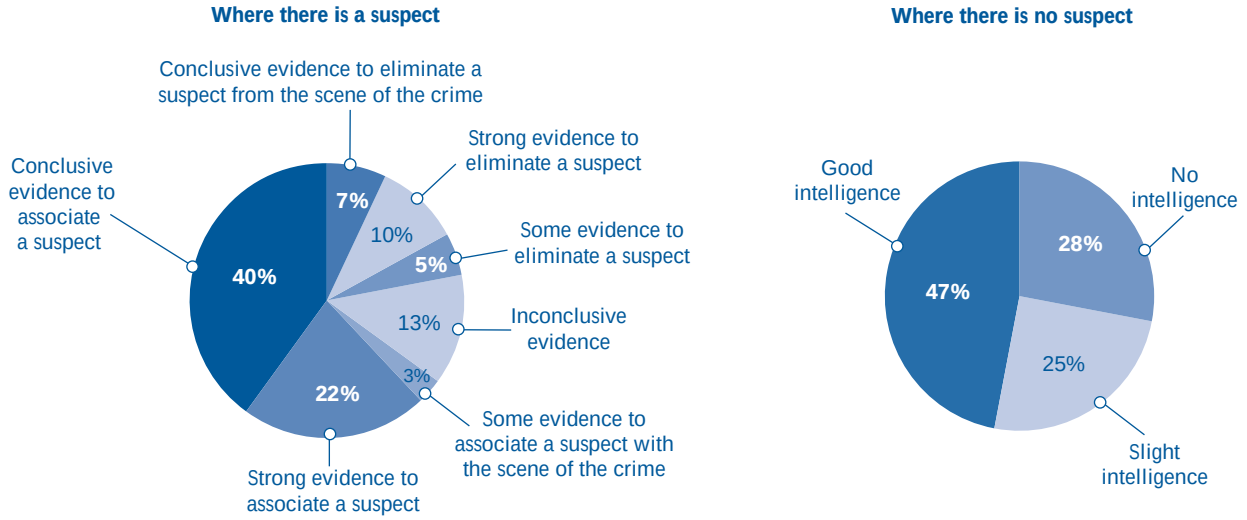
Source: Forensic Science Service

2.27 Where items are sent for analysis but the police have no suspect, it is not possible to score the results of the analysis on the scale (since there is no suspect to link to the crime). The Agency rates such cases in terms of their **intelligence value**. For example, the National DNA Database may generate a suspect's name if a crime scene stain matches a profile already on the Database; this would represent good intelligence value. Such cases are referred to as "speculative" cases.

2.28 The Agency uses this system of assessing effectiveness to monitor both its internal performance and the quality of submissions provided by the police forces for testing. High levels of inconclusive evidence could indicate that the police have been sending in the wrong items for testing or requesting inappropriate types of analysis. The performance of the different laboratories are compared and the results shared with police forces. Almost half of cases (47 per cent) in 2001-02 assessed by the Agency's scientists resulted in conclusive evidence to either associate or disassociate the suspect with or from the crime, compared to 41 per cent in 1998-99. For speculative cases (where there is no suspect) 72 per cent of those scored demonstrated evidence of some intelligence value **(Figure 23 overleaf)**. This was similar to the position in 1998-99.

23 In 2001-02, 47 per cent of forensic examinations where there was a suspect resulted in conclusive evidence, and 72 per cent where there was no suspect provided intelligence value

Almost half (47 per cent) of the 66,917 cases assessed by the Agency's scientists in 2001-02 resulted in conclusive evidence to either associate or disassociate the suspect with or from the crime, compared to 41 per cent in 1998-99. For the 5,461 speculative cases (where there is no suspect) assessed, 72 per cent demonstrated evidence of some intelligence value, which was similar to the position in 1998-99.



Source: Forensic Science Service

2.29 At the time of the previous NAO examination in 1998 we found that drug cases were not routinely assessed for the effectiveness of their analysis because the results of testing are relatively straightforward (that is, traces of a drug will normally be either conclusively present or not present). However we noted that a significant proportion (31 per cent) of non-drug cases had also not been assessed as to their effectiveness. In 2001-02 almost half (49 per cent) of non-drug cases had not been assessed as to their effectiveness. We also found that of the 37 non-drug cases included in the sample of 60 cases which we examined, 13 (35 per cent) were not assessed.

2.30 The Agency is not routinely informed of the outcome of cases in which it has been involved. For example, it is not 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 Forensic Science Service was routinely informed of the outcome of individual investigations and prosecutions would help the Agency better understand the impact of its work in meeting criminal justice targets. The need for better information sharing between departments and agencies involved in delivering criminal justice was a key theme identified in a 1999 NAO report and a 2002 Audit Commission report[18].

The quality and security of forensic evidence

Unless forensic evidence is subject to high standards of quality assurance and is securely maintained, there is a risk that it could be lost, damaged or contaminated to the extent that its reliability as evidence could be challenged.

2.31 The main risks to the reliability of forensic evidence being challenged are:

- Attempts by the criminal community to steal, destroy or tamper with evidence or equipment;
- The theft of high-risk or valuable items such as firearms and drugs;
- The inadvertent loss or contamination of items and samples;
- The deterioration of perishable items, for example biological samples prior to examination;
- The incomplete recording of all movements and analysis of items in the Agency's custody; and,
- The successful challenge in court of the integrity of scientific processes.

18 *NAO report Criminal Justice: Working Together (HC 29, 1999-2000) and Audit Commission report Route to Justice: Improving the Pathway of Offenders through the Criminal justice system (June 2002).*

Quality

2.32 The Agency operates a quality management system for ensuring that the scientific quality of its work meets national and international standards. In addition, the Agency has been considering ways of improving its approach to total quality management. This currently includes focusing on three main elements:

- **Appraisal** - for example the costs of internal audit, external audit, UK Accreditation Service (UKAS), quality assurance trials, efficiency testing, file checking and results checking which have been identified as costing four per cent of annual turnover (£5.1 million);
- **Prevention** - the cost of staff responsible for quality improvements, for example quality managers, development costs to improve processes, training of staff in procedures and quality, identified as costing four and a half per cent of annual turnover (£5.8 million); and,
- **Failures** - the cost of procedures which need to be repeated, for example failed samples in DNA testing, corrective actions arising from audit reports, dealing with complaints, supply chain failures, customer service failures, identified as costing 11 per cent of annual turnover (£14 million).

Key aspects of the Forensic Science Service's quality assurance

- Validation of new scientific techniques;
- Documented protocols and standards covering scientific and non-scientific work;
- Independent assessment by the United Kingdom Accreditation Service (UKAS) and British Standards Institute (BSI);
- Internal audits;
- Quality assurance trials;
- Responses to customer feedback and complaints; and,
- Staff training and competency assessment.

Source: Forensic Science Service

2.33 The Agency found that its approach to managing quality needed to be more focused on maintaining and improving both the quality of its service and its timeliness. It is now developing a new approach to optimise turnaround times and quality, which is more risk based and focuses on:

- The main risks to the Agency's core activities;
- The main risks to the quality of forensic casework; and,
- How the Agency can best understand what is needed to gain reasonable assurance that its outputs meet the requirements of its users and provide an effective service to the wider criminal justice system.

Security

2.34 The Agency's quality management system requires that security arrangements should be subject to an annual audit. The Agency also has external independent reviews of its security arrangements carried out by various bodies including the Home Office Departmental Security Unit, the Security Facilities Executive (an Executive Agency of the Cabinet Office) and the UK Accreditation Service. The police are also consulted for advice on security matters at individual laboratories.

2.35 In the previous NAO report we found that the Agency had been slow to implement the recommendations of two external security reviews; one by the Home Office Crime Prevention Centre in 1991 and one by the Security Facilities Executive in 1996. An action plan has since been developed and implemented which took account of the recommendations of the two reviews, consultation with local police forces and the findings of the earlier NAO report. The Agency has spent £1.8 million since 1998 on upgrading security arrangements at its laboratories. This includes erecting security fences, installing CCTV and a new alarm system at one of the laboratories.

2.36 We visited five laboratories and examined the arrangements for the safe custody of forensic evidence **(Figure 24 overleaf)**. We found that, since our examination in 1998, security arrangements had generally improved. The main area requiring further improvement was the need for a clear desk policy to be more consistently complied with. This policy was not operating at all laboratories due to a lack of storage space, which meant that a small number of exhibits and case files were not locked away out of work hours. The Agency's management are aware of this and are taking action to remedy it. At the time of our earlier report we found that a log of security breaches was not kept either centrally or at individual sites. This meant that managers lacked information to enable them to identify recurrent problems and weaknesses, assess the extent of risks to security and take remedial action. A central log of security breaches is now maintained and a review is carried out every year.

24 Results of the NAO's review of security measures at Forensic Science Service laboratories

We assessed security measures in five laboratories:

- Birmingham (Priory House), Birmingham (Trident Court), Huntingdon, London and Wetherby

Key security procedure	Number of laboratories where procedure was looked for	Number of laboratories where procedure was operating	Exception
1. Were the premises alarmed?	5	5	
2. Was there a security presence out of work hours?	5	5	
3. Were potential intruders prevented from viewing the interior of the building and the nature of the work undertaken?	5	5	
4. Was access to the premises controlled, for example, through a reception area?	5	5	
5. Were all visitors escorted within the laboratory?	5	5	
6. Were all items received checked against supporting documentation?	4	4	
7. Was there an assigned general storage area for items submitted by customers?	4	4	
8. Was access to storage areas restricted to stores management staff?	4	3	At one laboratory, non-stores management staff were allowed into the stores area, but management was planning to introduce a system to prevent this.
9. Were there adequate and appropriate storage areas for high risk items?	5	4	Storage space was not adequate at one laboratory during busy periods.
10. Was access adequately restricted in the more sensitive areas of the laboratory?	5	5	
11. Were items being worked on and their associated case files always held within fire and thief resistant cabinets overnight?	5	4	A clear desk policy was not operating at one laboratory due to lack of secure storage space.
12. Were stock control records maintained and safeguarded which show the location of items received into the laboratory?	4	3	We checked that the location of case-files and exhibits corresponded. At one laboratory a case-file could not easily be located.
13. Had there been an annual internal audit of security within the last three years?	5	5	
14. Had there been a full independent review of security within the last three years?	5	4	An independent security review had not been carried out within the last three years at one laboratory but one was planned to take place before the end of 2002.
15. Were records maintained of security breaches, detailing the circumstances of the breach and remedial action taken?	5	5	

NOTE

Procedures 6, 7, 8 and 12 were not checked at Trident Court since the majority of its work involves processing DNA samples for inclusion on the National DNA Database rather than routine casework.

2.37 In the year ending June 2002 there were 156 reported security breaches in total, a 37 per cent decrease compared to the previous year. The bulk of these were minor breaches such as lost passes and incomplete signing logs. There were a small number of more serious incidents, two of which are listed in **Figure 25**.

25 Two security breaches at the Forensic Science Service

Thefts of computer equipment

In April 2002, a burglar gained access to the Priory House (Birmingham) site by scaling the exterior of the building and climbing through a small sixth floor window which had been left open. He found his way to the Chief Executive's suite and stole two laptop computers (those of the Chief Executive and Chief Scientist). The burglar had no connection with the Agency. An alarm was activated and security staff found fire doors open. The burglar returned on Sunday evening (two days later) and removed money from a cash box held on the same floor. The police had identified a suspect who was a known burglar and who was believed to have committed offences at other offices in Birmingham. The police obtained a DNA swab from the suspect and this matched DNA found on the cash box. Following this incident, the Agency has reviewed its procedures at the Priory House site and will be installing CCTV to cover the sides of the building where the thief gained access.

Thefts of credit cards

In March 2001, an intruder gained access to the Trident Court (Birmingham) site by following a member of staff through a pass-activated door, and two credit cards were stolen from members of staff on site. The police subsequently arrested a suspect who was believed to have committed similar offences at other (non-Forensic Science Service) offices on the Trident Court site.

Source: Forensic Science Service

Users of forensic evidence being fully aware of the services which are available

If police forces are not fully aware of the full range of forensic analyses which are possible, as well as the most recent advances in technology, there is a risk that opportunities to use forensic evidence in criminal investigations may be missed.

2.38 The Agency provides a range of training for police forces and other customers to promote awareness of the value of forensic analysis and how it can be used to further criminal investigations:

- **On a national level** by contributing to national police training courses provided by Centrex (the Central Police Training & Development Authority). The Head of the Agency's Customer Training and Development Services team also sits on the Association of Chief Police Officers' (ACPO) Training Strategy Board which meets quarterly; and,
- **On a local level** by providing training courses to individual police forces according to their training needs.

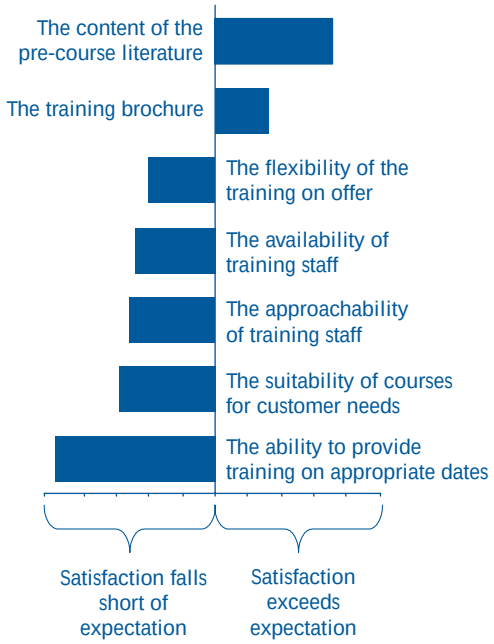
Courses are also provided to the Crown Prosecution Service and HM Customs and Excise.

2.39 The Agency has a dedicated Customer Training and Development Services Team. The number of training days provided for the police and other service users has increased from 357 days in 1998-99 to 569 days in 2001-02 - an increase of 60 per cent. Over half of all police forces in England and Wales undertake training at least once a year. The Association of Chief Police Officers (ACPO) informed us that, while police awareness of the value of forensic analysis is increasing, there is still much scope for improvement in this area. ACPO has set up a working group (the Scientific Support Training Strategy Group) to identify in which areas training needs are greatest, and how these needs should be addressed.

2.40 The Home Office has allocated £182 million over a four-year period (April 2000 to April 2004) to expand the National DNA Database. A small proportion of this (£3 million) was provided to the Forensic Science Service to finance a national police training programme to support the DNA Expansion Programme, with the remainder going to the 43 police forces in England and Wales. Training was needed to improve the police's knowledge and understanding of DNA profiling as a technique to assist an intelligence-led policing strategy. Between February and August 2000 the Agency delivered 721 courses to 15,000 police officers, many of whom were trained to "cascade" the DNA programme to other officers within each force. Training included a CD Rom prepared by the Agency and a training vehicle developed as a "mobile classroom" which travels to police stations around England and Wales. Since the vehicle's introduction in November 2001, it has been used to deliver over 1,750 hours of training to 1,200 police personnel.

2.41 **Police forces' views on the quality of training**. In March 2002 the Agency commissioned a survey to assess police forces' satisfaction with the training the Agency had provided. The survey was sent to 122 police and non-police customers who had attended training courses provided by the Agency, of whom 42 replied. In general, police forces assessed the quality of the training to be good, but the survey identified a number of areas where police forces were less satisfied, indicating the need for improvement **(Figure 26 overleaf)**. These included the timing of courses and the suitability of certain aspects of training in meeting customer needs, for example the use of language too technical for attendees to understand.

26 Results of customer satisfaction survey on training



Source: Forensic Science Service

2.42 A separate assessment of the CD Rom used in the training programme indicated high levels of satisfaction. The average overall rating for the CD Rom was nine out of ten, and 97 per cent of the 1,167 respondents said they would like to see more training aids developed in the same format.

The cost effectiveness of the Agency's forensic science services

If forensic science tests are not carried out cost effectively, resources may be misdirected and the productivity of the Agency reduced to the extent that it cannot meet the demand for its services.

2.43 The Agency has a target agreed with the Home Office, its sponsoring department, to achieve a minimum ten per cent efficiency gain over three years. This is a rolling target so in 2001-02, for example, a ten per cent efficiency gain should have been achieved since 1999-2000. Until 2001-02 the target was measured by total cost per "process output hour". This is calculated by dividing total annual costs by total hours worked in the year. The costs of, and time spent on, training and annual leave are included in this calculation. The Agency did not meet its efficiency target in five out of the last eight years, but it was met in 2001-02 **(Figure 27).**

2.44 From 2002-03 the Agency has changed the way it measures performance against its efficiency target to value added per £1 of staff costs, a more straightforward and widely accepted measure of efficiency. The Agency considers this a more accurate measure of efficiency as it takes into account the revenue generated by forensic analysis, as well as its costs. Value added per £1 of staff cost in 2001-02 was £1.09 and is forecast to increase to £1.14 in 2002-03. The new operations management system, a comprehensive IT system introduced in August 2002, should allow the Agency to cost its activities more accurately. It has the capability to take into account the different types of forensic analysis carried out at all seven laboratories, and the variety of staff skills and experience involved.

27 The Forensic Science Service's annual performance against its efficiency target 1994-95 to 2001-02

Year		1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Achieve an annual efficiency gain of.....	Target	0.22%	1.98%	3.69%	3.9%	N/A	N/A	N/A	N/A
	Outturn	✔ 1.41%	✗ 1.53%	✗ 2.04%	✔ 5.75%	N/A	N/A	N/A	N/A
Achieve a three-year rolling efficiency gain of	Target	N/A	N/A	N/A	N/A	9%	10%	10%	10%
	Outturn	N/A	N/A	N/A	N/A	✗ 6%	✗ 8%	✗ 9%	✔ 10%

Source: Forensic Science Service Annual Reports 1994-95 to 2001-02

How the Agency assesses the quality of the service it provides

The Agency is part of a larger chain of services which make 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. It is therefore important that the Agency has reliable and regular feedback on the extent to which police forces are satisfied with its services. Such information should allow it to improve and develop as necessary.

2.45 Since 1991, the Agency has carried out biennial customer satisfaction surveys. The most recent was completed in January 2002 and was sent to over 2,000 police officers of various ranks across all 43 police forces in England and Wales. The response rate was 29 per cent (602 responses). Seventy-five percent of those who responded considered that the services provided by the Agency were of a high standard **(Figure 28).** Those surveyed were presented with 52 statements about aspects of service delivery and asked to rank each in terms of both:

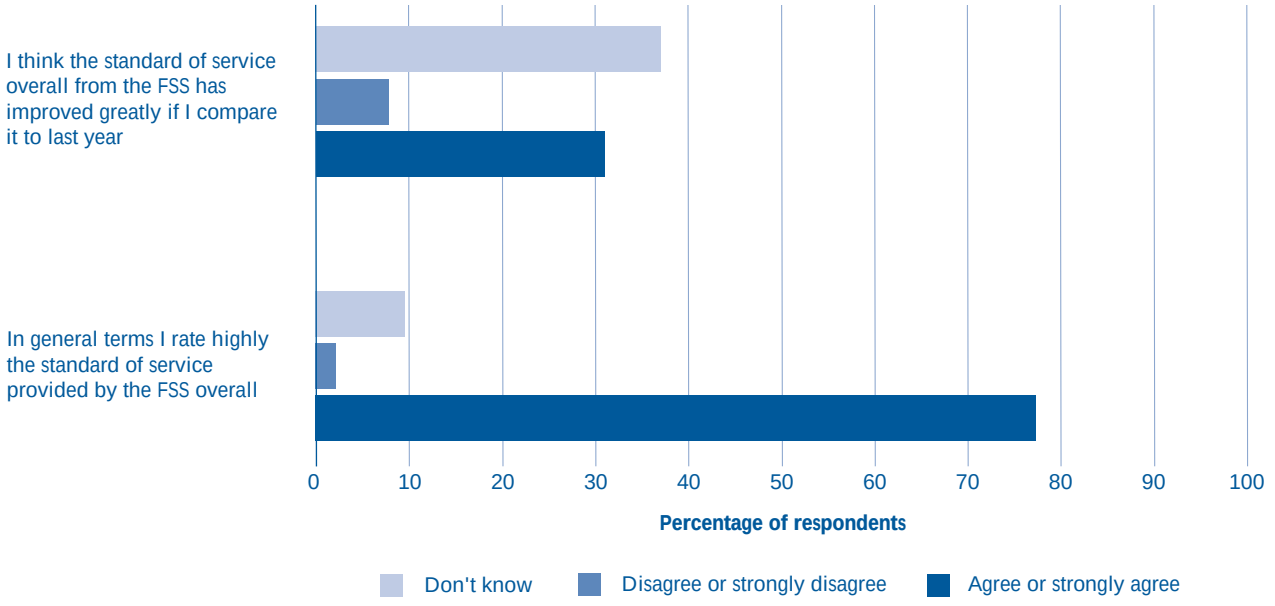
- **Expectation** - what their expectation would be in this area of an excellent forensic science provider; and,
- **Satisfaction** - how well that expectation was being met.

2.46 The gap between expectation and satisfaction was determined for each issue and ranked where service delivery was falling most (and least) short of user expectations. The discrepancy between expectation and user satisfaction was greatest in three respects:

- The consistency of service between different types of cases (for example between murder cases and burglaries);
- Services being delivered on or before the agreed delivery date; and,
- Being informed by the Agency that the agreed delivery date is likely to be missed.

28 Most users rated the Agency's services highly in January 2002

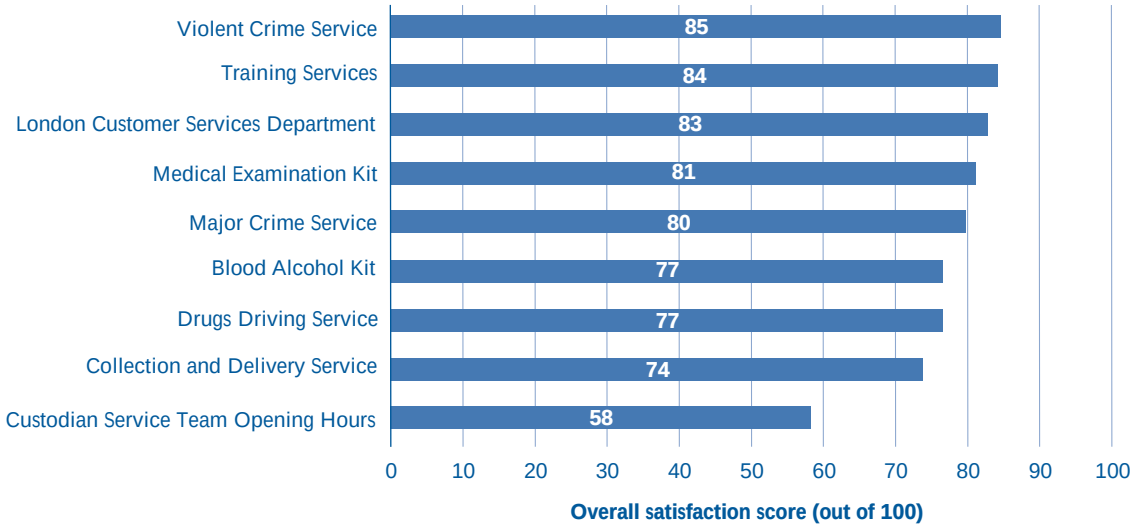
Over seventy five per cent of respondents to the January 2002 customer satisfaction survey strongly agreed or agreed that the standard of service received from the Forensic Science Service overall was a high one. Thirty one per cent considered that the standard of service had improved in the last year and 37 per cent did not know.



Source: Forensic Science Service

29 Since January 2002 the Agency has carried out more detailed satisfaction surveys of specific services

Of the nine surveys carried out to date violent crime and training services produced the highest overall rating of customer satisfaction, and opening hours for the National DNA Database Custodian Service Team the lowest.



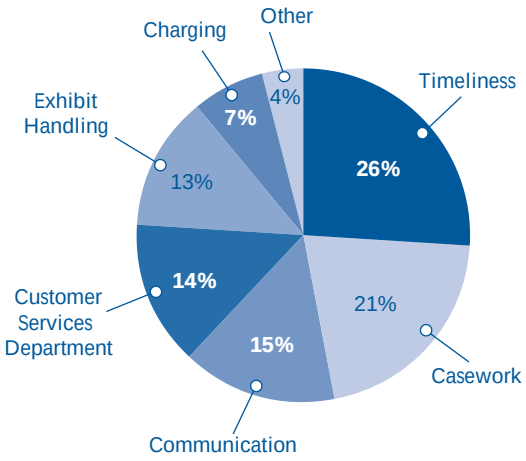
Source: Forensic Science Service

2.47 The biennial satisfaction survey has now been replaced by more frequent, detailed surveys of specific services provided by the Agency such as forensic testing in support of violent crime investigations. These new surveys also assess the extent to which users' satisfaction matches their expectation and they are targeted at customers who have most experience of using the service in question. The results of each survey are collected and an overall satisfaction rating (out of 100) allocated to each service. Of the nine services surveyed since January 2002, violent crime forensic analysis and the provision of training received the highest overall rating of customer satisfaction, and the opening hours for the National DNA Database Custodian Services Team gained the lowest **(Figure 29).**

2.48 The Agency also records and investigates all complaints it receives. In 2001-02, the Agency re-launched its customer feedback initiative, encouraging police forces to feed back their views on the level of service they received. In 2001-02, 212 complaints were received compared to 137 in 2000-01 and 119 in 1999-2000. The major issues raised were the timeliness with which forensic analysis was produced, the quality of casework, and communication between the Agency and police forces **(Figure 30).**

30 In 2001-02 the Agency received 212 complaints

One quarter of complaints in 2001-02 concerned timeliness. Quality of casework and communication were the next most complained about issues.



Source: Forensic Science Service

Appendix 1 Methodology

Issue	Approach
The time taken to examine forensic evidence	**Meta-analysis** of various data sources - including the Forensic Science Service's Annual Reports, management information and Joint Letters of Understanding with customers - to establish timeliness targets and evaluate performance. **NAO review of 60 case files** randomly selected[1] at four laboratories to provide an independent assessment of performance. **Semi-structured interviews** with Forensic Science Service management and staff to establish factors affecting the speed of service delivery. **Consultation with service users**[2] and **analysis of data** from the Forensic Science Service's customer satisfaction surveys and complaints records to evaluate the level of customer satisfaction with the speed of the Agency's service delivery.
The impact of forensic analysis in furthering criminal investigations	**Review of data** from the Forensic Science Service's own assessments to evaluate the usefulness of its work in furthering criminal investigations.
The quality, safety and security of forensic evidence	**NAO review of security measures** at five[3] Forensic Science Service laboratories based on observation and **semi-structured interviews** with Agency staff to evaluate adequacy of security arrangements. **Review of documentation** from the Forensic Science Service, including external security reviews and a central log of security breaches to evaluate progress in improving security since the 1998 NAO report.
The users of forensic evidence being fully aware of the services which are available	**Semi-structured interviews** with staff involved in providing customer training and a **review of documentation** to assess the type and amount of training provided by the Forensic Science Service. **Review of data** from Forensic Science Service customer satisfaction survey on training and **consultation with service users**[2] to evaluate the level of customer satisfaction with training provided.
The cost effectiveness of the Agency's forensic science services	**Evaluation of performance** based on review of Annual Reports and interviews with Forensic Science Service management.
How the Agency assesses the quality of the service it provides	**Consultation with service users**[2] and **analysis of data** from the Forensic Science Service's customer satisfaction surveys and complaints records to evaluate the level of customer satisfaction with the service provided by the Agency.

NOTES

1. The sample was weighted by crime type (for example volume crime, serious crime) to ensure it represented the mix of case types dealt with at the four laboratories visited (Wetherby, Huntingdon, London and Birmingham Priory House).
2. We consulted four police forces, the Association of Chief Police Officers (ACPO), HM Customs and Excise and the Crown Prosecution Service. The police forces consulted were the Metropolitan Police Service, West Midlands Police, Bedfordshire Police and Derbyshire Constabulary.
3. Wetherby, Huntingdon, London, Birmingham Priory House and Birmingham Trident Court.

Appendix 2 Progress against the recommendations of the 1999 Committee of Public Accounts report

Recommendation/conclusion	Action taken
On the delivery of forensic science services	
We look to the Forensic Science Service to develop its quality systems, keeping pace with scientific changes, so that the further projected increases in workload can be achieved while maintaining quality standards.	The Agency continues to have a robust quality control system covering both scientific and non-scientific aspects of its casework. This includes documented protocols and standards, internal systems audits and quality assurance trials. All new scientific techniques undergo a rigorous validation process before going live. Maintenance of external accreditation by the UK Accreditation Service and the British Standards Institute remains an Agency target (which has always been achieved). In 2001-02 the Agency achieved a new target of having 50 per cent of its Reporting Officers accredited to the Council for the Registration of Forensic Practitioners (CRFP), increasing to 100 per cent in 2002-03.
The Forensic Science Service is taking steps to improve delivery, for example by increasing capacity through the recruitment of 340 additional staff. It is important that these improvements are directed at meeting customers' priorities.	The key step taken in this area is the introduction of Joint Letters of Understanding (JLOUs) which have now been signed by 42 of the 43 police forces in England and Wales. The Agency uses the JLOUs to forecast demand and therefore plan in advance where and when it will place resources. Early indications show that the JLOUs have much improved the Agency's understanding of customer requirements. The Agency also undertakes a number of projects with individual police forces to tackle specific crime problems in particular areas (for example the Burglary Reduction Initiative in Leeds). In addition there are an increasing number of joint Forensic Science Service/Association of Chief Police Officers working groups, and in 2002 the Agency introduced more frequent and targeted customer satisfaction surveys.
Backlogs were as high as 120,000 samples in December 1997. Meeting the Forensic Science Service's target for eliminating the backlog by May 1999 is important in ensuring that the Agency is well placed to meet delivery dates agreed with police forces by March 2000.	The backlog of DNA suspect samples awaiting inclusion on the National DNA Database was eliminated by the end of March 1999, ahead of target. The average turnaround time for processing these samples was five days in September 2002, well within the target agreed with the police of twelve days, and a great improvement on the six month turnaround time in December 1997. The Agency has achieved this in the face of demand for this service doubling over the same period.
With a particular criminal investigation, the results of some forensic science tests may be needed more quickly than others, and the Forensic Science Service is generally able to respond to requests for early results. The Agency should work actively with customers to tailor delivery dates to their requirements.	The Agency introduced a priority system at no extra charge to its customers for dealing with urgent and critical cases more quickly than others. Police forces are required to forecast the proportion of cases which will be classified priority over the coming year. The Agency has been more successful at meeting delivery dates for priority cases than non-priority cases. For 2002-03 the Agency has set more challenging targets so that delivery dates have to be met in 98 per cent of urgent and critical cases and 99 per cent of persistent young offender cases. For all other categories of case the target is 93 per cent.

Recommendation/conclusion	Action taken
On the delivery of forensic science services	
So far in 1998-99, the percentage of agreed delivery dates achieved has varied from 50 per cent at the Birmingham Laboratory to 90 per cent at Chepstow Laboratory. The Forensic Science Service should review whether these differences in performance reflect variations in workload or efficiency, and if necessary take action to achieve a more appropriate distribution of work. Where there are differences in efficiency, it should work to raise standards to those of the best.	Data from 2001-02 show that there are still variations in performance between laboratories, but that the gap has been significantly narrowed. For example the ability to meet agreed delivery dates varied between 79 per cent at Trident Court (Birmingham) to 94 per cent at Wetherby, an improvement on the 1998-99 position. A national consistency programme has been introduced to compare performance across laboratories and spread best practice. This has resulted in some types of analysis being managed on a national basis, rather than by laboratory. A central operations controller manages demand and capacity on a weekly basis by transferring cases between sites. The operations management system (a new IT system introduced in August 2002) should improve the Agency's management information and allow it to predict demand and capacity more accurately in future.
Flexibility to move work from the London laboratory to other laboratories is limited by an agreement with the Metropolitan Police which comes to an end in 1999. The Forensic Science Service should then aim to bring the laboratory's delivery times into line with those across the rest of England and Wales by operating consistent arrangements in all its laboratories.	Target turnaround times for casework are now consistent across all sites, including the London laboratory. Since the agreement came to an end work has been regularly transferred from the London laboratory to other laboratories by the central operations controller.
On the security and custody of evidence	
The Forensic Science Service has commissioned a strategic risk assessment of security. We expect the Agency to act on the results of this assessment in a timely way. It is essential that the Forensic Science Service meets its target to implement all the recommendations of the 1991 and 1996 reviews.	The Agency undertook a comprehensive review of security taking into account the recommendations of the 1991 and 1996 reviews, consultation with local police forces and the findings of the previous NAO report. A strategic action plan was developed and implemented at a cost of £1.8 million.
Staff have personal responsibility to comply with security requirements, and the Forensic Science Service should in future be prepared to take appropriate disciplinary action against staff whose inattention to these requirements leads to security breaches.	Staff security breaches are now recorded and monitored centrally. In the year ended June 2002 there were 156 reported security breaches, the bulk of which were minor incidents such as lost passes. This was a 37 per cent decrease on the previous year.
There is a risk that organised criminals will try to infiltrate the Forensic Science Service. The Agency should draw on the experience of other agencies dealing with the criminal community, both in this country and overseas, on how this risk can be addressed.	The Agency works with the Home Office's Departmental Security Unit (with which it has a service level agreement) to address this risk on an ongoing basis. In addition the Agency's Chief Executive plans to liaise with overseas law enforcement agencies on this issue.

Recommendation/conclusion	Action taken
On relationships with customers	
The Forensic Science Service should harness support among chief officers to ensure that service level agreements are in place with all forces by the Agency's target at the end of next year.	The target (by the end of 2000) was not met, but Joint Letters of Understanding (JLOUs) were signed by 42 of the 43 police forces in England and Wales in 2002. The exception is the Metropolitan Police Service which has chosen, after a high-level independent review, to establish a more commercial relationship with the Agency and other forensic science providers, as a means to achieve both strategic alignment with its policing priorities and best value.
The training programme recently established to help Forensic Science Service Reporting Officers work more effectively with police investigating officers is a step forward in improving communications. The Agency should evaluate the impact of this training, especially in enabling its Reporting Officers to identify the key features and requirements of a case and discuss them with investigating officers.	Following the 1999 Committee of Public Accounts report a fast-track reporting officer training programme was introduced and evaluated. The resulting recommendations were used to design future training courses.
The Forensic Science Service should build on progress made at strategic level to promote awareness of the value of forensic science in crime investigations, to ensure that chief officers of police appreciate how the use of forensic science can improve their force's performance, and to persuade them to build it into their plans for improving the investigation of crime.	The Forensic Science Service's Head of Customer Training sits on the Association of Chief Police Officers (ACPO) Training Strategy Board which meets quarterly. Over half of all police forces in England and Wales undertake training at least once a year. In 2001-02 some 569 days were spent training customers, a sixty per cent increase on the 1998-99 figure. In addition a Home Office funded DNA training programme was launched in September 1999. The continuing increase in the Forensic Science Service's workload (a 14 per cent increase in casework in 2001-02 and 16 per cent increase in suspect samples for inclusion on the National DNA Database) indicates that police awareness of the usefulness of forensic analysis is increasing.
The Forensic Science Service told us that research and piloting to identify and illustrate the usefulness of forensic evidence in particular types of investigations suggest a potential doubling or trebling of detection rates through increased forensic awareness and quicker analysis. We look to the Agency to disseminate the results of this work to its partners in the criminal justice system, and especially the police and the Crown Prosecution Service.	Partnership projects such as the Burglary Reduction Initiative in Leeds are sought with all police forces. In the last four years over fifty Agency scientists have been seconded to police forces under such projects. The results of such projects are disseminated to the Agency's partners in the criminal justice system via joint working groups with the Association of Chief Police Officers (ACPO).
The Forensic Science Service should explore whether there are alternative less costly ways of satisfying forces' requirements for notification of "no match" results from DNA samples taken at unsolved scenes of crime.	In consultation with the Forensic Science Service representative police customer groups confirmed that notification of these results was no longer required.

Recommendation/conclusion	Action taken
On the responsibilities of the Home Office	
The Home Office should encourage forces to make full, effective use of forensic science in crime investigations, and to place contracting for forensic science on a firmer footing through service level agreements.	The Home Office funded DNA Expansion Programme (costing £182 million) encouraged greater police use of forensic science. Since 2000 the size of the National DNA Database has increased to over two million profiles. In addition four hundred police Scenes of Crime Officers (SOCOs) were recruited in 2001-02, which should result in more effective use of forensic science by forces. Joint Letters of Understanding (JLOUs) have now been signed by 42 of the 43 police forces in England and Wales.
The recent expansion of the Forensic Science Service and the granting of Trading Fund status bring challenges, to improve operational efficiency and to ensure customers' priorities are met. We expect the Home Office to monitor the Agency closely to ensure that it is capable of meeting these challenges.	The Home Office continues to monitor the Agency's performance closely through the Forensic Science Service Advisory Board, which meets quarterly. This is chaired by the Director General of the Home Office's Policing and Crime Reduction Group, who is responsible for advising the Secretary of State on the Agency's performance, and acts as the Fraser Figure for the Agency.
The Home Office should encourage police forces to publicise safeguards against retention of DNA samples given by volunteers as part of mass screens in investigation of a serious crime.	The National Crime Faculty and National DNA User Group published a booklet entitled "Intelligence-led DNA screens - guide for investigating officers". This provides clear advice to police on how to handle DNA screening exercises so as to reassure volunteers. In addition the Science Policy Unit of the Home Office issued guidance (HOC 25/2001) with suggested wording for volunteer consent forms.