Outline Audit Findings

National Programme for IT in the NHS

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Contents

Contents 0
Summary 1
Conclusions and Recommendations 4
Part 1: What the Programme is and where it has reached 7
Part 2: Preparing to deliver the systems 14
The Programme is intended to enable the NHS to provide better patient care 14
The Programme has Ministerial support 14
The Department chose to procure and manage the Programme centrally 15
Part 3: Procuring and delivering the systems 19
[redacted]
NHS Connecting for Health has used the levers at its disposal to improve suppliers' performance 23
Part 4: Preparing to use the systems in the NHS 27
The Department has been slow in securing the engagement and commitment of the NHS to the Programme 27
Clinicians have been involved in the design of the systems 29
NHS Connecting for Health is taking steps to inform future users and win their support 30
Staff are disappointed by the slow development and deployment of the Programme 32
The Department plans to use its systems for monitoring and managing performance to help deliver the Programme 33
There may be insufficient trainers to train NHS staff 33
The NHS currently lacks sufficient skills to support the delivery of the Programme 34
Appendix 1: Methodology 35
Appendix 2: Lessons learned from the procurement and management of the National Programme which may be of benefit to other departments 37
Appendix 3: Developments in International Health IT 38
Appendix 4: Issues raised in correspondence with the National Audit Office 39

Summary

1 The National Health Service (the NHS) depends on the successful handling of vast quantities of information to function effectively. The National Programme for Information Technology in the NHS (the Programme) is a ten year programme to use IT to reform the way the NHS in England uses information, and hence to improve services and the quality of patient care. The core of the Programme will be the National Care Records Service, which will make relevant parts of a patient's clinical record available to whoever needs it to care for the patient. The Programme also includes many other elements, including X-rays accessible by computer, electronic transmission of prescriptions, IT support for patients choosing their hospital, and statistical research tools.

2 The Programme was launched by Ministers in June 2002. Followin

timetable, and with incentives to protect continued value for money over the life of the Programme.

vi. By late 2005, some elements of the Programme had already been delivered, including some outside its original brief. These achievements included:

- The Quality Management and Analysis System (QMAS) to support the new contract for General Practitioners introduced in April 2004.
- A new NHS wide directory and email system (Contact).
- The first 12,000 connections of the 18,000 eventually planned for the new NHS broadband communications network N3.
- Initial milestones for new systems to deliver Ministerial targets for choice and the electronic prescriptions service, and deployments of X-ray and other diagnostic images systems (PACS).

vii. However, achievement of other milestones have been deferred:

- The National Data Spine first went live on time, in June 2004 but achievement of later milestones for building up its functionality has been delayed by up to ten months.
- Local Service Providers' delivery of the first phases of the National Care Records Service and the advanced integrated hospital IT systems that are central to the long-term vision for the Programme will now be at least one year later than originally planned. In the Southern cluster delivery will be at least two years later than originally planned. Milestones for later phases of the Service have not yet been set.
- Deployment of the Choose and Book system to support patient choice has been slower than planned as a result, amongst other things, of the time needed to resolve problems with interfaces with existing NHS systems. Deployment of the electronic prescriptions service and PACS have also gone more slowly than planned, although NHS Connecting for Health expects to achieve Ministerial targets for later stages of the deployment.

viii. In May 2005 the Department published a Care Record Guarantee setting out the principles it intends to apply to protect the confidentiality of electronic patient records. Work continues on a number of important practical issues, including sharing information with non-NHS bodies, such as local authority social services, and the working of 'sealed envelopes' intended to allow patients to limit the sharing of information about themselves.

ix. At present, the total cost of the Programme over the ten years to 2013-2014 (at 2004 prices) is projected to be £13.4 billion, made up as follows:

- **£6.2 billion** by NHS Connecting for Health on the contracts let in 2003 and 2004 the figure that has consistently been stated by NHS Connecting for Health in its literature and announcements;
- **£1.2 billion** by NHS Connecting for Health on additional services and renewing contracts that expire before the end of the ten year period to 2013-14;
- **£2.6 billion** in other central expenditure, primarily by NHS Connecting For Health, on centrally managed projects and services within the Programme and running NHS Connecting For Health.
- **£3.4 billion** in expenditure by local NHS organisations, for example on local IT and training and ensuring compliance of local systems with Programme delivered systems. The Department takes the view that spending by local NHS organisations is provided for in current funding plans for trusts, but IT funding is not explicitly ring fenced. Money will only be available if trusts give IT spending priority over other demands on their budgets, and problems with affordability have delayed progress with the deployment of the X-ray images system, PACS.

x. Up to the end of March 2005, actual expenditure has been lower than planned, with £260 million spent against expected expenditure of £699 million, reflecting the slower than planned delivery of some systems and contractual provisions that suppliers will only be paid once services are delivered and working.

Conclusions and Recommendations

6 The Department and NHS Connecting for Health have made substantial progress but successful implementation of the Programme continues to present significant challenges for the Department, NHS Connecting for Health and the NHS, especially in three key areas:

- Ensuring that the IT suppliers now deliver systems that meet the needs of the NHS, to agreed timescales, and without further slippage.
- Ensuring that NHS organisations can and do fully play their part in implementing the Programme systems.
- Winning the support of NHS staff and the public in making the best use of the systems to improve services.

7 In going forward, we make the following recommendations:

(a) The Department of Health and NHS Connecting for Health should provide greater clarity to organisations and staff in the NHS as to when the different elements of the Programme will be delivered. NHS Connecting for Health should confirm that it now has a robust engineering based timetable for delivery, which it is confident its suppliers are capable of achieving.

(b) NHS Connecting for Health, the Department and Strategic Health Authorities should then communicate to individual organisations and members of staff how such a timetable will affect them, and forewarn them of the challenges facing the Programme, so that the setbacks and changes of priority inevitable with a programme of this size do not cause a loss of confidence.

(c) NHS Connecting for Health shoul

(f) The Department, NHS organisations and NHS Connecting for Health should put in place training to strengthen the project management and IT skills available to the NHS, working with

Figure 2: Initial phased deployment timetable

Phase 1 Release 1 – Development completed by June 2004, roll-out completed by December 2004 – This phase will install systems, hardware and software to form the framework to build future functionality, including Personal Demographics Service, the Personal Spine Information Service, the Tr

1.5 Not all Programme systems need to use all of the functions of the Spine. However, all of them will depend on it to some degree, and progress on any individual system cannot go faster than progress on those parts of the Spine that it will use.

Where the Programme is now

(a) Progress

1.6 Figure 3 shows the main projects for which NHS Connecting for Health has responsibility, their progress to date and the estimated costs of delivery to 2013-14.

1.7 By 6 January 2006, a total of 8,063 deployments of systems had taken place across the five clusters. Deployments have mainly been of systems forming part of the Choose and Book system (6,698 systems), practice systems for GPs and a web based information system for hospitals called Map of Medicine. But they also include initial deployments of operational electronic transmission of

Figure 3: Principal Projects and Systems making up the Programme and managed by NHS Connecting for Health

Project	What it will do	Progress achieved				Cost (£ million at 2004-05 prices)	
		Procurement		Development and Deployment			
		OJEU notice issued	Contract Signed	Target	Position as at late 2005	Contracted cost	
National Infral0.059 l743.1 118.22 1038.5995ip48 ref53.58 1050.06 71.88 -17.5490.8 0.8 0.8 scn59o924 1040.750.8 scn59o924 8t3CBT/TT7 1 ref148.0 tae9n59o924 8t3CB							

				electronically.

(b) Cost

1.9 Over the ten years to 2013-14, the cost of the Programme is currently projected as £13.4 billion (at 2004-5 prices)[5], made up as follows:

- **£6.2 billion** on the contracts placed in 2003 and 2004 for the Department, the figure that has consistently been stated by NHS Connecting for Health in its literature and announcements;
- **£1.2 billion** on additional services and renewing contracts that expire before the end of the ten year period to 2013-14 (Figure 4);
- **£2.6 billion** in other central expenditure, primarily by NHS Connecting For Health, on centrally managed projects and services within the Programme and running NHS Connecting For Health.

Central expenditure includes:

- Central set up and Management and implementation costs such as Technology office and central estate costs
- Activity on the National Programme: such as the help desk and the national Integration centre
- Other projects managed centrally by NHS Connecting for Health, such as Electronic Transfer of Prescriptions, PACs, Contact and Dentistry
- Additional services to deliver Choice to the NHS not being obtained through the contract with Atos Origin

million) and losses of economies of scale (£62 million) following the dissolution of the Common Solution project.

Source: NHS Connecting for Health, National Audit Office

1.10 The Depart

Part 2: Preparing to deliver the systems

The Programme is intended to enable the NHS to provide better

skills and experience he considered necessary to manage the procurement and delivery of the Programme.

2.5 The Department and NHS Connecting for Health made considerable efforts to specify and describe the high level benefits that the different projects within the Programme are intended to deliver, for example in the agency's National Programme Implementation Guide[9], and documentation setting out the intended timeline and milestones for delivery of benefits[10]. However the Department has not sought to put a financial value 10.98 118.2s 98 Tj10.98 erot7 T.

Provider is ready to deploy. In addition, if

Figure 6: The key principles of the Care Record Guarantee

- *Pati*

Part 3: Procuring and delivering the systems

There was vigorous competition for the contracts

3.1 For the eight main contracts[13], there were 160 responses to the notice published in the Official Journal of the European Union which signified the start of the competitive process. The number of suppliers was reduced as each procurement progressed. NHS Connecting for Health maintained competitive tension by negotiating contracts with at least two final bidders before selecting a winner and keeping the preferred bidder stage very short. Through the use of standard financial model templates NHS Connecting for Health could make like for like comparisons of bids, and identify where bidders could reduce their prices by reducing costs, or allowances for risk or profit. NHS Connecting for Health achieved price reductions totalling £4.5 billion from the winning bidders on the eight main contracts.

3.2 Where the winning prime suppliers were going to use the same sub-contractors, NHS Connecting for Health used its buying power to negotiate significant price reductions from the sub-contractors. Savings from such "enterprise wide agreements" are expected to total some £140 million over the life of the Programme. NHS Connecting for Health also used its buying power to negotiate significant price reductions from other suppliers of IT to the NHS, for example, Microsoft (Figure 8).

Figure 8: NHS IT and Microsoft

In November 2004 NHS Connecting for Health negotiated renewal of the Department's NHS-wide licence for Microsoft desktop products, which NHS Connecting for Health estimates will save £330 million over nine years. Microsoft also committed to spend £40 million on developing an NHS user interface to help standardise healthcare applications for clinicians, increasing efficiency and reducing the risk of clinical error.

NHS Connecting for Health also considered open source solutions for NHS IT, but decided against doing so for two reasons:

- The NHS already had an installed base of over 500,000 Microsoft environments and users were familiar with Microsoft; and
- open source solutions are not necessarily cheaper: they may b

for IT systems within the NHS of three years, and 18 months to two years for the procurement of a single major PFI project.

The contracts include strong incentives to deliver

3.4 **NHS Connecting for Health will not pay suppliers until services are delivered and working.** The longer suppliers take to deliver, the longer it will be before they are paid. However, the contracts with the Local Service Providers allow advance payments to be made, in recognition of the substantial sums Local Service Providers will have to spend on system development before they begin being paid for deployments. The negotiated contracts allowed for some £241 million to be paid to contractors in 2004-05. As a result of delays in delivery of systems and following negotiation on contract change notices, £133 million was actually paid to contractors during 2004-05.

3.5 **Suppliers can win back delay and performance deductions.** Suppliers who miss key milestone dates must pay agreed amounts, *delay deductions*, into an escrow account on which interest is earned. [redacted] Suppliers can win these deductions back, with interest, if they meet specified service commencement dates, the amount they can win back decreasing the later they introduce the services after the specified commencement date [redacted]

3.6 Suppliers who fail to meet agreed levels of service accrue *performance deductions,* and have to pay into an escrow account amounts depending on the severity of the performance failure and its repetition. If a supplier rectifies its failure for the following three months, the performance deductions are refunded, with interest. Otherwise NHS Connecting for Health is entitled to keep the money.

3.7 **Parent company guarantees place the onus on suppliers to deliver.** A parent company guarantee should lead the parent company of a supplier to the Programme to undertake sufficient due diligence to ensure that the subsidiary could deliver the project. It also gives the commissioning Department confidence that the supplier has sufficient funding and resources to carry out its obligations under the contract. In accordance with OGC guidance, NHS Connecting for Health secured parent company guarantees from all its suppliers. These provide for suppliers to pay NHS Connecting for Health up to between £50 million and £500 million (depending on the supplier) in the event of the supplier's default. Suppliers are further

incentivised as their contracts can be terminated without compensation in the event of contractor default.

NHS Connecting for Health can take remedial action if suppliers are failing to deliver

3.8 The key safeguards are:

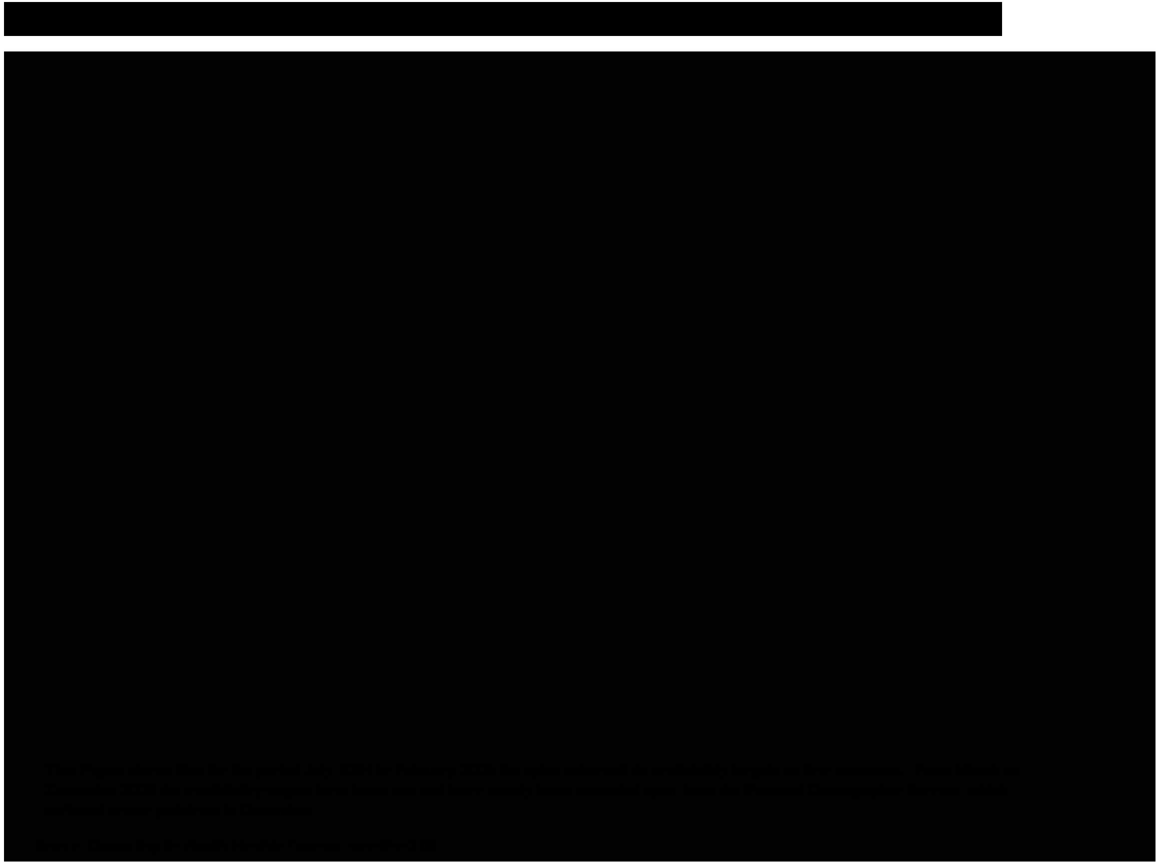
- NHS Connecting for Health can step in and manage the supply chain if and when required.
- NHS Connecting for Health can audit the performance of suppliers.
- The Department owns the software.
- Terminated contractors have to assist in transferring the service.

The contracts include appropriate value for money mechanisms

3.9 NHS Connecting for Health has put mechanisms in place to help ensure continuing value for money over the life of the contracts. The pricing of changes is tightly controlled, suppliers are required to ensure the technology is continuously improved and refreshed so that systems continue to meet the changing needs of the NHS throughout the contract periods; service performance and costs can be benchmarked; and NHS Connecting for Health can share in excess profits. All of these mechanisms are underpinned by open book accounting.

of GPs in England but which at the time was not among the systems on offer to GPs. The lack of choice was unpopular amongst GPs

NHS Connecting for Health action led BT to improve its capability to deliver the Spine



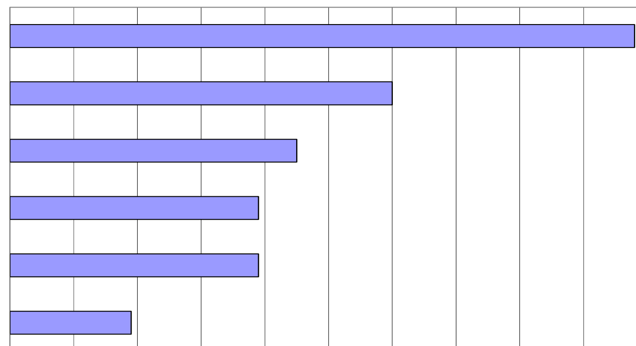
Part 4: Preparing to use the systems in the NHS

The Department has been slow in securing the engagement and commitment of the NHS to the Programme

Engaging NHS staff remains a challenge

4.1 A MORI survey of NHS staff[16] in June-July 2005, commissioned by NHS Connecting for Health, found that the majority of staff were positive about what the Programme was trying to achieve in the future and considered that services provided by the Programme would help them in their daily working life to share information about patients and improve patient care. The survey also showed, however, that many had little information about the Programme. Three in ten knew nothing about the Programme and one in seven had not even heard of it whereas just under half knew at least a fair amount, including one fifth who know a great deal about it. Figure 10 shows that within the staff groups, awareness was lowest amongst doctors, nurses and allied health professionals, the most important stakeholders that the Department needs to convince of the virtues of the Programme, and highest amongst IT managers.

Figure 10: Front line staff are least familiar with the National Programme



4.2 Other sources suggest that NHS Connecting for

The Department was slow to demonstrate clear and effective leadership to engage NHS organisations and staff

4.5 To gain the support of those who are going to use the Programme's systems, the Department and NHS Connecting for Health needed to communicate widely from the outset why the Programme had been designed in the way it was, why it was being procured centrally, the benefits it was expected to generate for patients and the users, and how confidentiality and security were to be protected. Communication and engagement, however, was initially given inadequate priority with the Department and NHS Connecting for Health taking the deliberate decision to give the procurement and the letting of contracts priority.

4.6 The Department's ability to communicate was hampered by a lack of continuity in the appointment of a Senior Responsible owner responsible for communicating with NHS organisations and staff. At the inception of the Programme, the Department's Director of Research, Analysis and Information was the Senior Responsible Owner for the Programme as a whole. He retired in March 2004, and the Director General for IT took over as Senior Responsible Owner, with further Senior Responsible Owners responsible for individual components of the Programme. However, the Director General for IT had no management responsibility for NHS bodies, and was never responsible for ensuring that the NHS' input to implementation and realising business benefits was delivered. Between April 2004 and May 2005, the Department appointed three different people to fulfil the role of engaging with the NHS. In April 2005, the Department of Health's Group Director of Health and Social Care Delivery was appointed as overall Senior Responsible Owner for the Programme.

Clinicians have been involved in the design of the systems

Procurement and development of the Programme has centred on an "Output Based Specification" (OBS)

4.7 NHS Connecting for Health initiated development of the OBS, a statement of the functions that the planned IT system is intended to perform, in February 2002 and issued it to suppliers in May 2003. We enco0605n, a2.9/68Tj10n, a2.9/68Tj05 Tm(We enco0605n, a2.o)Tj10.98 0 0 10.(Del 007 T

a positive development. For example, The National Clinical leads demonstrated they can have an influential role by highlighting the demand from GPs for a wider choice of GP system.

Figure 11: National Clinical Leads

- Each lead is a well known member of their profession with credibility among practising clinicians;
- Leads have been instrumental in setting up and chairing three clinical advisory groups - covering doctors, nurses and Allied Health Professionals - which are a forum for dialogue between NHS Connecting for Health and health care professionals, the Royal colleges,

Those working in the NHS are disappointed by the slow development and deployment of the Programme

4.14 The MORI survey found that a minority of NHS staff questioned (ranging from 13 per cent of nurses to 32 per cent of doctors) are currently unfavourable towards the Programme because they feel it is moving slower than they expected and because implementation dates are not being met. The professional bodies we spoke to commented that information on updates or deployment plans had often been unreliable, with deployment slippages reported to be a common experience, which has dented

4.19 NHS Connecting for Health's strategy requires there to be sufficient staff to become trainers. Within the NHS existing trainers in Trusts are already working to capacity and more trainers are required to deliver the volume of training needed for Programme systems. Strategic Health Authorities and Trusts are actively recruiting more trainers, but are having problems in recruiting those with the skills needed and as Local Service Providers are also recruiting from the same pool; the scarcity of suitably qualified candidates is driving salaries up.

The NHS currently lacks sufficient skills to support the delivery of the Programme

4.20 The quality and quantity of IT staff, those with technical IT expertise and those with good knowledge and experience of delivering and managing projects, within the NHS is a risk to the successful development and deployment of the Programme. Of the 28 Strategic Health Authority Chief Information Officers, all of whom have special responsibility as a source of expertise and knowledge on the Programme, just six are board level appointments. This, or the absence of other sufficient championing of the Programme at Board level in Trusts, may reduce the capacity of NHS boards to drive forward the Programme by supporting the deployment and implementation of Programme systems.

4.21 In April 2005, in recognition of difficulties in the recruitment, training and development of IT staff, and the development of IT skills more generally amongst NHS staff, the NHS Faculty of Health Informatics was placed within the Service Implementation Team of NHS Connecting for Health. It took this step to focus efforts to develop health informatics professionalism and qualifications as an integrated part of the Programme.

4.22 Trusts often use staff taken from clinical duties to carry out project management functions, regardless of any project management knowledge or expertise. NHS Connecting for Health recognises that the difficulty of finding suitably experienced project management staff to support delivery of the Programme will be exacerbated as deployments increase and greater numbers of staff with benefits realisation or project management skills are needed.

Appendix 1: Methodology

Aspect	Methodology - how we examined
1) Developing a concept for what the systems should do	
Whether the Programme's vision is soundly based	(i) Review of the business case and prospectus of the architecture of the Programme and how the expected benefits will be delivered. (ii) Identified lessons learned from current NHS systems and how the Programme has incorporated lessons from these. (iii) Commissioned a paper from Professor Ross Anderson of Cambridge University

	in place to generate engagement (b) how the Programme is being communicated. (vii) Interviews with National Clinical Leads about their role and the action they are taking to promote the Programme. (viii) Review of survey results from Medix and the RCN to assess the awareness of and extent of communication about the Programme (ix) Reviewing Programme and Department of Health data on costs of transferring from existing systems and the costs of non-contract Programme expenditure (such as infrastructure and local training). (x) Visited two early roll out sites to identify examples of what the Programme is delivering in practice.
4) Development of appropriate structures and infrastructure	
Whether *a) Project management is fit for purpose* *b) Governance arrangements are adequate* *c) Relati*	

Appendix 2: Lessons learned from the procurement and management of the National Programme which may be of benefit to other departments

- **Speed.** A swift procurement process increases the likelihood of technology being up to date and benefits being delivered earlier. It also reduces overall bid costs for bidders and the costs of procurement.
- **Maintaining competition.** Negotiating contracts with more than one final bidder maintains a competitive tension between bidders and may offer further reductions in price.
- **Very short preferred bidder stage** helps to avoid the risk of prices creeping up once suppliers know that competitive pressure has eased.
- **Use of templates for financial models.** Requiring bidders to complete a template demonstrating their financial model can assist the contracting authority in comparing bids on a like for like basis and identifying where bidders could reduce their prices.
- **The principle of 'payment for systems that are delivered and working'** incentivises delivery and reduces the risk of the taxpayer having to pay for unsatisfactory services.
- **Intrusive management of the supply chain.** The contracting authority can rectify problems with delivery by stepping in to the supply chain in the event that suppliers are failing to deliver. Suppliers can be required to replace underperforming subcontractors.
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Appendix 3: Developments in International

Appendix 4: Concerns raised in correspondence with the National Audit Office

During the course of our examination the National Audit Office received a wide range of correspondence concerning the National Programme from the media, academics, clinicians, IT specialists suppliers and from seven Members of Parliament. The correspondence covered a variety of themes and concerns which are set out in this Append

7 Use of PACs Systems	The selection of PACS suppliers, the specifications for PACS, and the use of PACS by NHS Trusts. Functionality and financial cost of the PACS solution developed by the local service providers. Poor value for Money re the implementation of the Patient Archiving and Communication Systems (PACS) in the NHS by NHS Connecting for Health.
8 The assessment of the General Medical Contract	The choice of accredited software for use in assessing outcomes for the new General Medical Practice Contract.
9 The contracting process	The monitoring and control over the contacting process and whether the selected product was appropriate The contracting process, the involvement of Microsoft and the consideration of open sourcing. The software procurement and development processes and the use of consultants and advisors to implement and develop the programme.
Source: Correspondence with the National Audit Office	