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Department of Health

Transforming NHS ambulance services

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Department of Health

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In England, urgent and emergency healthcare and patient transport services are provided by 11 regionally-based ambulance trusts, with separate arrangements for the Isle of Wight. In 2009-10, the cost of ambulance services was £1.9 billion, of which £1.5 billion was for urgent and emergency services.

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Summary

1   In England, urgent and emergency healthcare and patient transport services are provided by 11 regionally-based ambulance services, with separate arrangements for the Isle of Wight. In 2009-10, the cost of ambulance services was £1.9 billion, of which around £1.5 billion was for urgent and emergency services.

2   In 2009-10, 7.9 million emergency '999' calls were received by the ambulance service, which resulted in 6.4 million ambulance incidents and 4.7 million emergency or urgent patient journeys. The number of emergency or urgent calls that the ambulance service receives has increased by about 4 per cent each year since 2007-08.

3   Until 1 April 2011, ambulance responses were split into three categories: A – immediately life-threatening; B – serious but not immediately life-threatening; or C – not immediately serious or life-threatening (**Figure 1**). For category A incidents, the service has a target of an emergency response arriving at the scene within eight minutes in 75 per cent of cases, and a vehicle able to transport the patient in a clinically safe manner, if required, to attend within 19 minutes in 95 per cent of cases. There was a similar 19-minute target for category B incidents. Category B responses and the associated target were abolished by the Department of Health (the Department) from 1 April 2011, and a set of clinical quality indicators were introduced to complement the response time target for category A incidents.

4   The Government has embarked on a fundamental reform of the NHS, which will see the responsibility for the commissioning of ambulance services transfer from primary care trusts to GP consortia. These reforms are being introduced at a time when the NHS faces the tightest financial settlement in many years and when the Government aims to deliver up to £20 billion of efficiency savings in the NHS by the end of 2014-15. The ambulance service is expected to play a part in achieving these savings by identifying a minimum of 4 per cent efficiency savings within its budget (around £75 million per year).

Figure 1
Response time targets and performance for the ambulance
service, 2009-10

Call category	Response time	Target (%)	National performance (%)	Variation across ambulance services (%)
A	Within 8 minutes	75	74.3	70.8 to 78.3
A	Within 19 minutes	95	96.8	92.7 to 98.8
B	Within 19 minutes	95	91.0	85.9 to 95.8
C	Locally set targets			

Source: Department of Health and National Audit Office analysis of ambulance service data

5　　This study examines whether ambulance services provide a cost-effective service to patients seeking urgent and emergency care. It also considers whether they and other parts of the emergency care system operate in such a way as to minimise costs to the wider health service. The ambulance service cannot provide a cost-effective service in isolation from the rest of the NHS.

6　　Outputs, such as speed of response, were the dominant performance measure throughout the time period covered by this report. Lack of data means we cannot comprehensively assess value for money in terms of outcomes (see below). Instead, we have set out our view of the requirements for a cost-effective ambulance service (**Figure 2** overleaf). We assessed value for money against these requirements, by comparing between ambulance services and by comparing the ambulance service as a whole against NHS-wide performance. We have not assessed the value for money of individual services. This report does not cover patient transport services, air ambulance services or ambulance services on the Isle of Wight, which are provided by the primary care trust. We have worked within the current consensus on clinical good practice in emergency care. A summary of our methodology can be found in the Appendix.

Figure 2
Requirements for a cost-effective ambulance service

	Inputs	Processes	Outputs	Outcomes
Within ambulance services	Good understanding of demand Good understanding of staff, skills requirement and capabilities	Optimal deployment of resources to meet demand Optimal response model to manage demand through the call cycle	The Department of Health's targets are met cost-effectively	Appropriate clinical outcomes for patients are achieved High levels of customer satisfaction
Between ambulance services	Consistent, accurate and timely data (for example, measures of resource utilisation, costs, outputs and outcomes) to manage and improve performance, and to allow commissioners to benchmark and performance manage ambulance services Good practice is understood, agreed and applied in a consistent manner			
The wider NHS (some require collaboration with ambulance services)	Commissioning of, and funding for, ambulance services incentivises the delivery of cost-effective ambulance services			
	Accurate data on availability and capacity of alternative services is available	Processes of other providers enable optimal ambulance service performance – for example, hospital handovers	Ambulance output targets that are consistent with cost-effective delivery of outcomes	Timely, accurate data on outcomes at individual patient level to allow ambulance services to improve is available

Source: National Audit Office analysis

Key findings

7   The ambulance service has a pivotal role to play in the performance of the entire urgent and emergency care system. Traditionally, the ambulance service has been seen primarily as a call-handling and transportation service, encompassing some aspects of patient care. Increasingly, however, it is recognised as having a wider role, as a conduit to other NHS services and in ensuring patients can access the facilities they need, close to their home.

8   Performance over the last decade has been driven by response time targets and not outcomes. The category A 8-minute response time target, which is one of the most demanding in the world, has served to focus action on improved outcomes for some immediately life-threatening conditions, and meet public expectations for a consistently fast response. Performance has been maintained in recent years despite increased demand, supported by trained community volunteers. Its existence in isolation from more direct measures of patient outcomes has, however, created a narrow view of what constitutes 'good' performance, and skewed the ambulance services' approach to performance measurement and management. The target, and the 'call connect' system introduced to standardise the way performance against the target was measured and incentivise the service to take calls immediately, created unintended consequences including over-allocation of vehicles where, for example, more than one vehicle is deployed and then the surplus stood down.

9 From 1 April 2011, the category A response targets will be part of a range of indicators designed to encourage a much broader, outcome-led, performance regime. We agree that this regime should be more fit-for-purpose but note that the accurate measurement of patient outcomes will rely on acute trusts and accident and emergency departments sharing data with the ambulance service.

10 There is scope for improved efficiency as evidenced by variations between ambulance services in costs per call, the way resources are deployed to meet demand, the take-up of different approaches to responding to calls and reliance on overtime.

- The cost per call across ambulance services varies between £144 and £216, and the cost per incident varies between £176 and £251, indicating scope for efficiency. Our analysis suggests these variations reflect, at least in part, factors within the control of ambulance services.

- The most qualified staff, advanced practitioners, are used in different ways by different ambulance services and are often not used in ways that make full use of their skills.

- Ambulance services are now handling more calls over the phone by providing clinical advice to callers (known as 'hear and treat'), treating patients at the scene ('see and treat') and conveying patients to a wider range of care destinations. However, the percentage of calls treated in these ways varies considerably across services, because some services started to undertake these changes earlier than others and some have developed a closer relationship with NHS Direct, which provides clinical telephone advice. We estimate indicative financial savings to the NHS from increased take-up of these new response models of £100 million to £280 million a year. Realising these savings will depend on reconfiguration of services by commissioners.

- Services currently rely on overtime, at a cost of nearly £80 million per year, partly due to difficulties in matching staff availability with demand, and sickness absence rates, often the legacy of previous ambulance delivery bodies. High sickness absence rates contribute to poor resource utilisation and reliance on overtime and sickness rates for ambulance staff varies by 60 per cent between ambulance services.

11 Ambulance services need to take more opportunities to learn from each other. Coordination across services has improved substantially over the last few years, with effective collaboration in a number of key areas such as procurement and emergency planning. However, differences between the services in culture and data definitions have inhibited the take-up of some good practice. There are also inconsistent performance measurement criteria, meaning performance cannot always be compared across the sector. For example, ambulance services need to have a clear understanding of the extent to which ambulance crews are utilised. However, there is no consensus among ambulance services on the best way to measure resource utilisation, or what 'good performance' looks like. The sharing of best practice and the achievement of economies of scale may be inhibited if services envisage being in competition with one another in the future.

12   A lack of alignment of objectives between urgent and emergency care providers, including ambulance services, means that work remains to achieve cost-effective integrated emergency care.

- Over one-fifth of patient handovers at hospital accident and emergency departments (the time taken from arrival at a hospital to handing over the responsibility for care to a hospital healthcare professional) take longer than the 15 minutes recommended in guidance. If ambulances are queuing outside hospitals they are not available to respond to other calls. There is also scope to reduce the time taken by ambulance crews from patient handover at the hospital to being available for their next job. Commissioners can encourage services to focus on these issues if progress is not being made – some commissioners, but not all, have built financial incentives into hospital contracts to reduce handover and turnaround times.

- Effective triaging and assessment relies on there being other services available that the patient can access. Primary care trusts, which currently commission ambulance services, are at different stages of developing an electronic directory of local services, which can be used by health service staff to identify appropriate services that are available for their patients.

- The commissioning of ambulance services has until recently focused on the day-to-day management of contracts. The National Ambulance Commissioning Group is working to incentivise demand management and to develop a more strategic approach to ambulance commissioning, and assisting the Department in its development and implementation of a national system of tariffs for ambulance services. However, as the NHS moves towards GP-led commissioning, there is a danger that accumulated knowledge will be lost in the transition to the new arrangements.

13   The ability to improve performance is limited by a lack of data on patient outcomes and a lack of comparative information that can be used to benchmark performance. Being able to assess the impact of delays described in paragraph 12 and the accuracy of paramedics' diagnoses could help services to measure the safety and quality of patient pathways, and ensure that these pathways are tightly managed. But at present, data on clinical outcomes are available for only a few key conditions such as stroke and cardiovascular disease. Services have been unable to track most patients after they arrive at hospital as ambulance and hospital information systems are not linked. Better measurement of outcomes will drive up clinical quality.

14   The ambulance service collects a wide range of performance data. But different interpretations of data requested by the NHS Information Centre and in the way services define some of the metrics make it hard for commissioners to benchmark the services they receive.

Conclusion on value for money

15   The ambulance service provides a life-saving service to some patients, is highly regarded by the public, and rightly remains committed to providing a rapid response to urgent and emergency calls at a time of steadily growing call volumes. But, until April 2011, the Department's emphasis on response time as a measure of performance rather than on a more rounded view of clinical outcomes, meant that the incentive structure did not encourage resource optimisation.

16   In addition, limitations in management information and benchmarking prevent the Department, commissioners and the ambulance service driving improvement – as demonstrated by the wide variations in the efficiency of resource use across the ambulance services, even after allowing for external factors such as geographic variations. These differences indicate that value for money is not being achieved across the entire network. The introduction of a new outcome measurement regime, together with our recommendations, may begin to address these problems and help deliver better value for money in the future.

Recommendations

17   A coordinated approach across the health sector will be required if the full benefits of ambulance service transformation are to be realised. Our recommendations are aimed at the ambulance service, commissioners and the Department.

a   **The ambulance service has a pivotal role to play in the performance of the entire urgent and emergency care system to improve its integration, cost-effectiveness and consistency.** The Department, and in future the NHS Commissioning Board, has a role in helping to bring about a better model by ensuring that existing specialist knowledge of ambulance commissioning is not lost. Commissioners should increase the use of the levers within contracts to develop an integrated emergency care response model which incentivises service improvements, reduction in demand and reduction in conveyance rates to accident and emergency departments and places the ambulance service at the heart of this model. These arrangements should operate within an overarching urgent and emergency care strategy to encourage integrated and consistent services. In particular, commissioners need to ensure that:

- work to develop local directories of services continues at pace; and

- alternative destinations to accident and emergency departments are available.

b **Response time targets have been the major priority for ambulance services for over a decade but outcome indicators have now been introduced.** The ambulance services are a clear example of what gets measured gets done. The new clinical quality indicators show that the Department recognises that change is needed. The new measures and the performance regime need to be carefully thought through to deliver the right balance to preserve rapidity of response, but as one element of a more rounded response model. The Department needs to establish how the 'call connect' process during call initiation can be adjusted to allow more flexibility within the model. Ambulance services and commissioners will have to decide quickly how to balance these indicators and to what extent resources will have to be deployed in different ways.

c **Achieving efficiencies across the ambulance service will require strong leadership.** The Department, and later the NHS Commissioning Board, should provide leadership to the emergency and urgent care sector by putting in place a robust measurement and monitoring regime for the new clinical quality indicators, ensuring NHS ambulance services and commissioners have information which allows them to benchmark performance, and compare outcomes, in order to deliver the best performance and value for the system overall. It needs to ensure that hospitals provide good quality rigorous outcome data and that ambulance services have the means to escalate data quality issues, otherwise the effort to re-orientate to more sophisticated outcome measures will fail.

d **Ambulance services' greatest challenge over the next four years will be to improve efficiency in their resource bases while managing demand in a different way.** Ambulance services should work more closely together to identify opportunities to drive efficiency improvements in the way their resources are utilised and identify operational efficiencies. In particular, ambulance services should share best practice:

- on the understanding of staff capacity and demand to better deploy staff in a way that maximises the opportunity to reduce journeys to accident and emergency departments through better triaging; and

- on managing sickness absence.

e **Objectives are not consistently aligned to ensure that the performance of the ambulance service can be maximised.** Commissioners should:

- apply appropriate incentives in contracts for ambulance services and hospitals to ensure patient handover times at hospital do not systematically exceed 15 minutes and turnaround times of ambulance crews are optimised; and

- incentivise health providers to establish and then maintain up-to-date information on local directories of services.

f **A lack of comparative information is available to benchmark performance alongside clinical quality indicators.** NHS ambulance services, in conjunction with commissioners, should develop a minimum data set, including staff utilisation, with agreed definitions that services and commissioners can use to benchmark performance and to monitor service improvements in the 'see and treat' and 'hear and treat' categories.

Part One

Introduction

1.1   This part of the report explains what the ambulance service does, the environment within which it operates, and its resources.

The ambulance service

1.2   The ambulance service provides urgent and emergency healthcare and patient transport services. In 2006, 31 ambulance services in England were consolidated into 11 regionally-based ambulance services with separate management arrangements for the Isle of Wight.[1]

1.3   Call volumes have been steadily rising over the last few years (**Figure 3**). This is part of a broader increase in demand for emergency services. The ambulance service has limited influence over the number of '999' emergency calls it receives, but has a statutory obligation to resolve a call, once received. In addition to emergency calls, ambulance services are required to take patients to hospital where a doctor, midwife or other healthcare professional identifies the need as urgent. From April 2007, these calls were prioritised and classified in the same way as emergency calls.

1.4   Traditionally, the ambulance service has been seen primarily as a call-handling and transportation service, encompassing some aspects of patient care. Increasingly, however, it is recognised as having a wider role, and as being pivotal to the performance of the entire urgent and emergency care system.[2]

1.5   Key statistics for the ambulance service in 2009-10, are shown in **Figure 4**. Provisional figures for 2010-11 indicate that calls and incidents have continued to rise.

1.6   Until 2011, ambulance responses were split into three categories: A – immediately life-threatening; B – serious but not immediately life-threatening (removed in April 2011); or C – not immediately serious or life-threatening. **Figure 5** on page 14, shows the most common examples for each category. Research has shown that the triaging system errs significantly on the side of caution. For example, although currently 29 per cent of calls are categorised as category A, only about 10 per cent of calls have a life-threatening condition.[3]

1   Ambulance services in the Isle of Wight are provided by the Isle of Wight Primary Care Trust. They account for 0.2 per cent of total call volumes.
2   Department of Health, *Taking healthcare to the patient: Transforming NHS ambulance services*, 2005.
3   Department of Health, *Taking healthcare to the patient: Transforming NHS ambulance services*, 2005.

Figure 3

Call volumes over time

Calls (millions)

Year	Calls (millions)
2000-01	4.4
2001-02	4.7
2002-03	4.9
2003-04	5.3
2004-05	5.6
2005-06	5.9
2006-07	6.3
2007-08	7.2
2008-09	7.5
2009-10	7.9
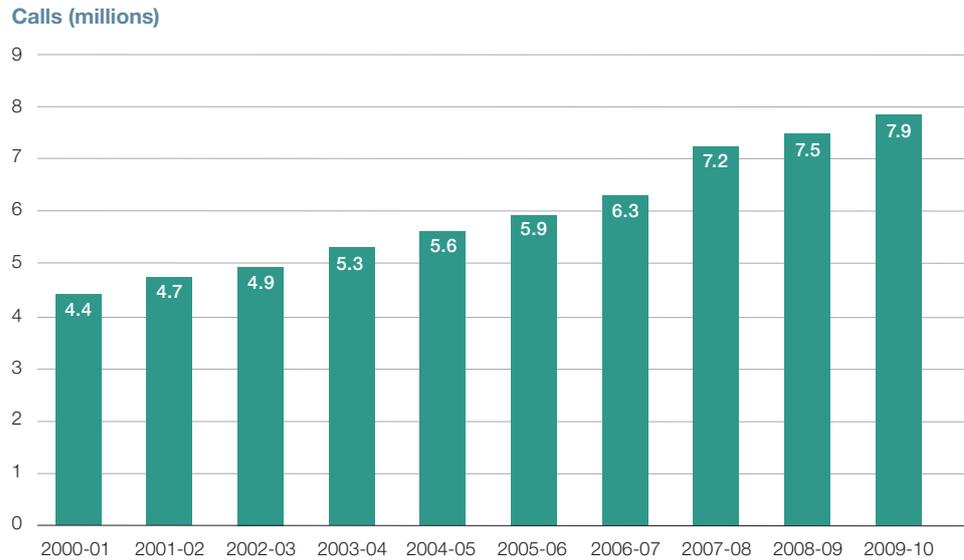
NOTE

1   From 2007-08 'urgent' calls are included (see definition at paragraph 1.3).

Source: National Audit Office analysis of NHS Information Centre data

Figure 4

Call activity and resolution in 2009-10

Call triage and mobilisation

- 7.87 million calls received
- 0.22 million are handled by telephone advice
- 6.42 million incidents result in mobilisation of one or more vehicles

Journey to patient

- More than 10 million vehicles mobilised
- Of these over 2 million are cancelled before arriving at the scene

Assess/ treat

- 7.9 milion vehicles arrive on the scene
- 1.6 million incidents resolved at the scene

Convey/ turnaround

- 4.7 million patents conveyed
- The majority are taken to accident and emergency departments

Source: National Audit Office analysis of NHS Information Centre data

Figure 5
Most common ambulance responses under each category in 2009-10

Category A

- Chest pain with, for example: abnormal breathing; not alert; or cardiac history

- Unconscious/fainting – not alert; ineffective breathing; or multiple episodes

- Breathing problems – severe respiratory distress; not alert; or ineffective breathing

Category B

- Fallen – unknown status or fall over 2 metres; serious bleeding; or possibly dangerous body area

- Sick person with no priority symptoms; status unknown; not alert; or cardiac history

- Overdose/poisoning with no priority symptoms

Category C

- Fallen – assistance required but not otherwise affected

- Sick person – range of non-serious conditions, for example: can't sleep; diarrhoea; hungry; sore throat; or joint pain

- Abdominal or back pains (non-traumatic)

NOTE

1   Following the abolition of category B, the examples shown above under this category would now be classified as category C.

*Source: Department of Health's call definitions and 2009-10 reference costs*

1.7   Ambulance services can manage demand at three points within the call cycle (**Figure 6**) by:

- deciding on the appropriate action when the call is received (refer to a more appropriate service, or treat over the phone ('hear and treat'), or dispatch a vehicle);

- treating the patient at the scene so that a conveyance to a provider is not required ('see and treat'); and

- deciding on the most appropriate destination for those that are conveyed, typically to a consultant-led accident and emergency department, though other destinations, such as walk-in centres and minor injuries units, may be available and more appropriate.

1.8   Ambulance services are currently commissioned by a 'lead' primary care trust on behalf of the other primary care trusts whose populations are served by the ambulance service. These commissioners are responsible for agreeing strategic plans, priorities and funding across all of their constituent primary care trusts; translating them into commissioning intentions; negotiating contracts and specifications with ambulance services; and managing the performance of ambulance services against the contract and wider strategies.

1.9   In the new NHS structure, as set out in the Health and Social Care Bill now before Parliament, primary care trusts will disappear and the commissioning of services will pass to GP consortia. Ambulance service staff expressed concerns that specialist knowledge about commissioning ambulance services is already being lost in the transition to the new system.

Figure 6

Stages in the response to an emergency call
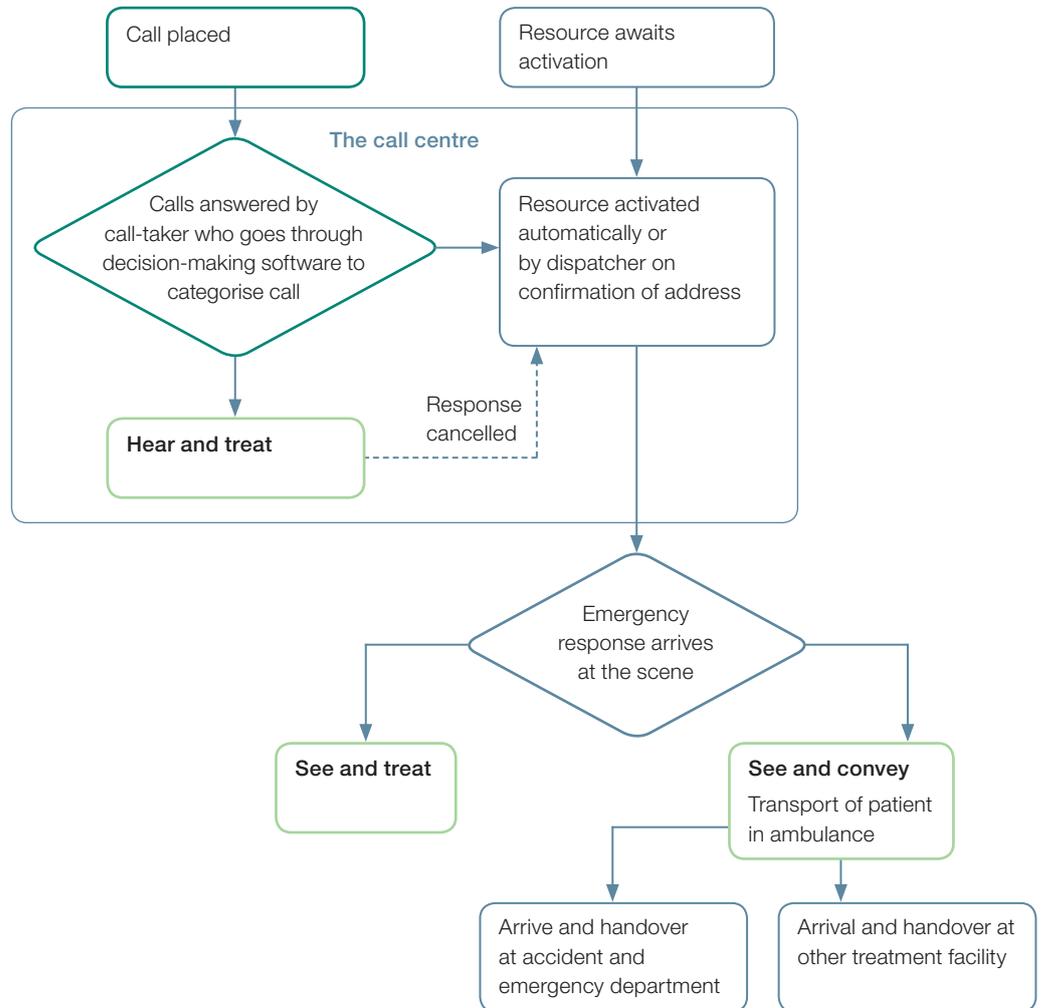
NOTE

1   The response model for individual services may vary from this generic model.

Source: National Audit Office literature review

1.10 The Department sets national performance targets (see Figure 1, page 5), a range of clinical quality indicators (see paragraph 2.9, page 28 and Figure 17, page 29) as well as targets for efficiency savings (see paragraph 3.19, page 37). The Care Quality Commission regulates all health and adult social care services in England, including ambulance services.

Funding

1.11 In 2009-10, total expenditure on ambulance services was £1.9 billion, of which around £1.5 billion was classified as emergency transport services spend, and £0.4 billion on patient transport and other services. Spend on urgent and emergency services has increased from around £1.1 billion in 2006-07.

1.12 Ambulance services' funding broadly reflects the volume of calls received (**Figure 7**). Each service provides the Department with its reference costs, which are the average costs incurred in providing different treatments (**Figure 8**). These data show that, for example, paramedic costs vary by over 30 per cent across services. Data are generally validated by services themselves. Reference costs checks are undertaken across the ambulance service to reduce errors and ensure consistency. However, we identified examples of inaccurate recording of reference costs.

Figure 7

Ambulance services' funding for urgent and emergency services and total calls received, 2009-10

Total calls received (millions)

A	Great Western	E	East Midlands	I	East of England
B	North East	F	South East Coast	J	North West
C	South West	G	West Midlands	K	London
D	South Central	H	Yorkshire		
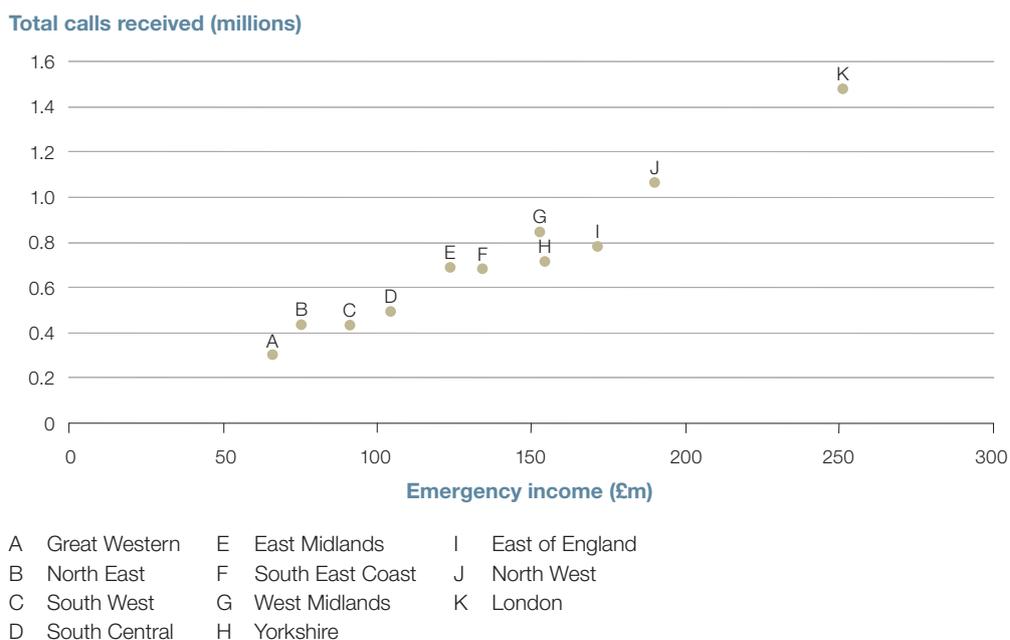
Source: National Audit Office analysis of ambulance service data

Figure 8

Index of reference costs for ambulance services, 2009-10

Region	Value
East of England	112
Yorkshire	111
South Central	111
South Western	104
Great Western	103
South East Coast	102
London	100
West Midlands	96
East Midlands	95
North West	91
North East	85

Reference cost index
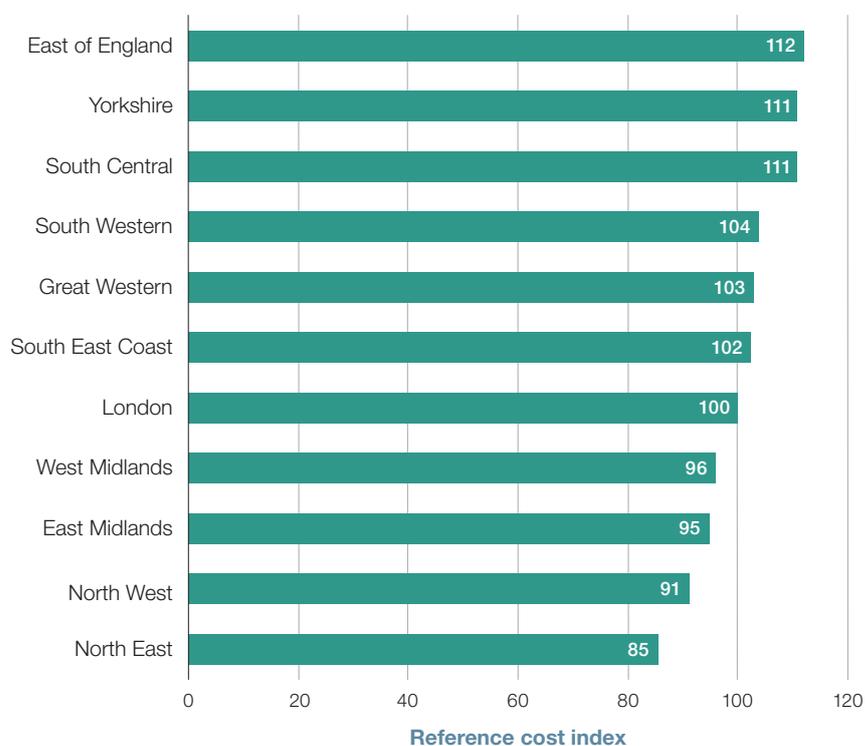
NOTE
1   Adjusted for market forces factor.

Source: National Audit Office analysis of ambulance trust data

1.13 The Department introduced an NHS standard ambulance contract in 2009-10, but there are variations within this contract. Some commissioners pay ambulance services based on a unit price up to a set level of activity, with additional funding for activity above forecast demand. Others make a 'block' payment to the service which does not vary with demand. The contract may contain provision for penalty payments for poor performance. Part of the contract, up to 1.5 per cent of the total value, is used by some commissioners to incentivise specific initiatives in areas such as demand management or data quality.

1.14 The Department and commissioners are working towards introducing a national tariff system for ambulance services, expected to operate from 2012-13. This will reimburse ambulance services for the activity they undertake, using a tariff of fixed prices based on the average costs of treatment across all ambulance services. In the acute sector, commissioners have experienced problems with similar types of tariff because this rewarded hospitals for undertaking more expensive types of activity.

Expenditure

1.15 Front-line activities, including vehicle staff, front-line management and support and vehicle costs, account for 64 per cent of expenditure. The remaining expenditure is accounted for by call-taking and dispatch (7 per cent) and back office and support functions (29 per cent). A 2010 study comparing the back office costs of NHS organisations found that ambulance services were generally comparable to, or lower than, most other NHS organisations.[4] Differences in response models between the services lead to variations in cost profiles. For example, front-line costs vary between 60 per cent and 70 per cent of total expenditure (**Figure 9**).

Figure 9

Percentage of expenditure on front-line services, 2009-10

Percentage of expenditure on front-line services
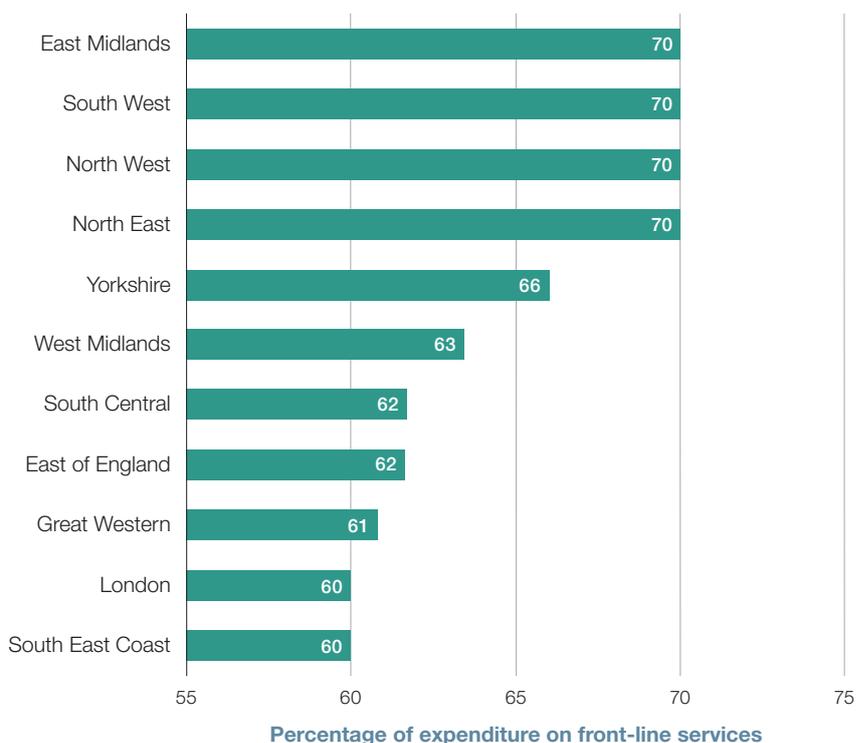
NOTE
1   Percentage axis begins at 55 per cent.

Source: National Audit Office analysis of ambulance service data collected by Deloitte

4   Foundation Trust Network, *QIPP national work stream: back office efficiency and management optimisation*, 2010.

1.16 Staff costs made up 68 per cent of total operating expenditure for ambulance services in 2009-10. The remaining expenditure is accounted for by transport costs (11 per cent), depreciation (4 per cent), buildings and their running costs (4 per cent), clinical supplies and services (2 per cent) and other expenditure areas (11 per cent).

Staffing

1.17 The number of staff working for the ambulance service has increased over the last four years from 30,100 to over 34,700, an increase of 15 per cent (**Figure 10**) against a NHS average of 9 per cent. Since 2007, full-time equivalent qualified ambulance staff numbers have increased by 7 per cent, comparable to a 7 per cent increase in qualified clinical staff across the NHS, for example. However, in some ambulance services qualified ambulance staff numbers have decreased over this period.

Figure 10
Staff numbers

Number of staff (full-time equivalents)

	Qualified ambulance staff	Support to ambulance staff	Other staff
2007	16,400	9,800	3,900
2008	16,800	11,400	3,700
2009	17,100	12,700	4,100
2010	17,600	13,000	4,100
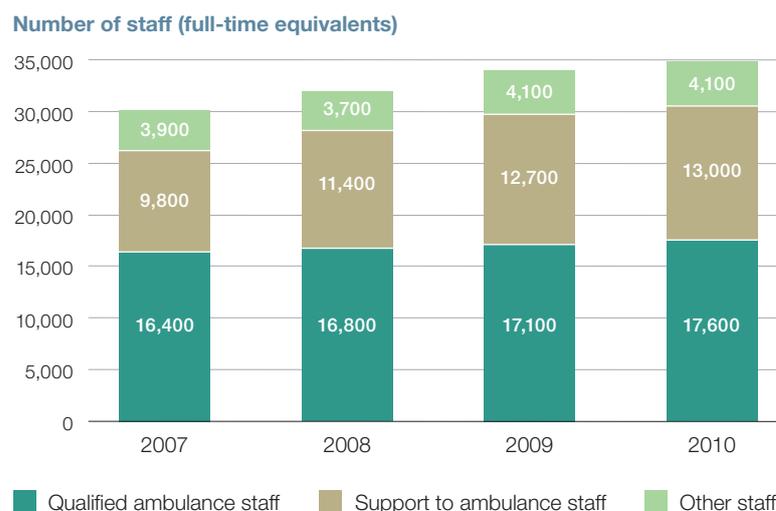
NOTES

1 Qualified ambulance staff includes paramedics, technicians, advanced practitioners and ambulance service managers but does not include ambulance trainees. Other staff includes senior managers, central and other support functions.

2 Individual values may not sum to totals due to rounding.

Source: National Audit Office analysis of NHS Information Centre data

1.18 The main grades of ambulance staff used by services to respond to emergency calls are:

- Emergency care assistants who have a working knowledge of moving and handling and communications systems and can undertake basic life support but cannot otherwise carry out medical interventions with patients.

- Emergency medical technicians who respond to emergency calls, sometimes as first responder. They are trained to administer many of the same treatments and procedures as paramedics. The role is being phased out.

- Paramedics who are professionals who assess a patient's condition and give essential treatment. They are usually part of a two-person crew with an assistant or technician.

- Advanced practitioners who can undertake more specialised tasks such as diagnostic testing; and directly admit patients to specialist units. They can treat patients at home with urgent, non-life-threatening conditions. In most ambulance services they operate as solo first responders in cars.

1.19 The ambulance service also makes use of community first responders – non-medical professionals or members of the public with life-saving training. They are trained and equipped by ambulance services to attend a range of emergency calls in advance of the arrival of ambulance crews in order to begin medical assistance and life-saving care as quickly as possible. In 2009-10, they attended over 111,000 incidents.

1.20 The different resource models that ambulance services employ are highlighted by differences in grade mix (**Figure 11**). Some services are moving towards having a paramedic in every ambulance, whilst others are making more use of technicians and emergency care assistants. There is no common agreement on what an ideal resource mix would be.

1.21 Ambulance staff are covered by the NHS Agenda for Change pay scales. Earnings in front-line operational roles are often enhanced with unsocial hours payments of up to a quarter of basic salary, reflecting the 24-hour nature of the service.

Figure 11

Variation in types of qualified staff, 2010

	Percentage of qualified staff			
	Manager (%)	Advanced practitioner (%)	Ambulance paramedic (%)	Ambulance technician (%)
North East	1	0	77	22
East Midlands	1	4	70	26
South Western	2	8	67	24
Yorkshire	2	2	61	35
Great Western	2	11	58	28
South East Coast	3	6	38	54
West Midlands	3	3	67	28
North West	3	2	52	43
South Central	3	5	56	36
London	8	2	57	33
East of England	8	8	56	28

NOTE

1   Percentages for each service may not sum to 100 per cent due to rounding.

Source: National Audit Office analysis of NHS Information Centre data

Part Two

Ambulance service performance

2.1 This part of the report covers the performance of ambulance services against response time targets, in terms of cost-effectiveness, and against outcome and quality measures.

National response targets

2.2 **Figure 12** shows that in 2009-10 the ambulance service reached 74.3 per cent of category A calls within eight minutes (against a target of 75 per cent), 96.8 per cent in 19 minutes (against a target of 95 per cent) and 91 per cent of category B calls in 19 minutes (against a target of 95 per cent). Call connect, a new way of measuring ambulance response times, was introduced in April 2008. Since this date, ambulance response times have been measured from the moment the call is connected to the ambulance control room. This meant that ambulance services needed to respond, on average, 90 seconds faster than before. It also greatly increased the speed with which phones are picked up – in London 95 per cent of calls are picked up in five seconds compared with 40 per cent five years earlier.

2.3 Of the 11 ambulance services, six met the 8-minute category A target and one met the 19-minute category B target in 2009-10 (**Figure 13** on page 24). South Central was the only service that did not meet the 19-minute category A target in 2009-10. Most services meet the targets for the majority of the year, but performance dips in the winter months, when there are increased call volumes, congestion in hospital accident and emergency departments and slower response times due to adverse road conditions.

Figure 12

National performance against response time targets

Percentage

|	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
● Category A within 19 minutes	96.0	95.8	97.0	97.1	96.9	96.8
● Category B within 19 minutes	87.7	87.3	90.5	91.5	91.0	91.0
● Category A within 8 minutes	76.2	74.0	74.6	77.1	74.3	74.3
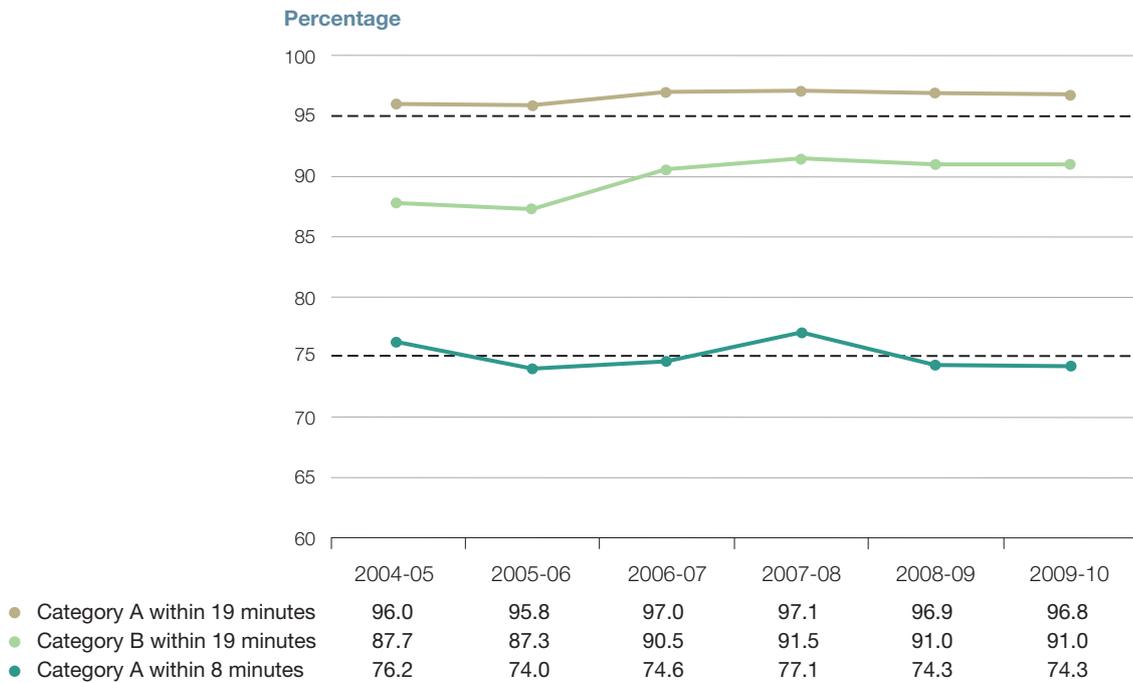
NOTE

1   From 2007-08 urgent calls are included (see definition at paragraph 1.3). From 2008-09 the starting point for response time measurement was changed, making achievement of the target more challenging.

Source: NHS Information Centre

Figure 13

Ambulance service performance against response time targets, 2009-10
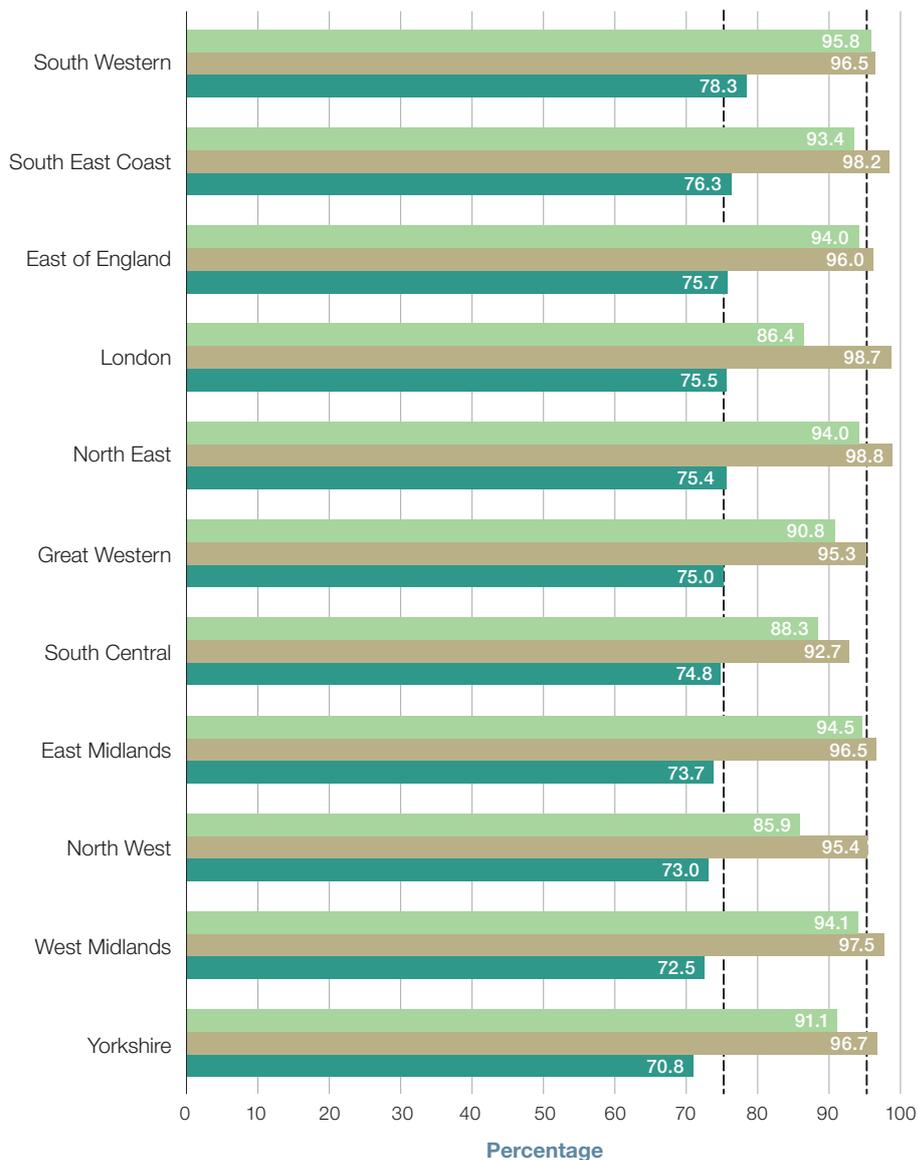
	Category A response within 8 minutes	Category A response within 19 minutes
	Category B response within 19 minutes	

NOTE

1   The dashed lines represent the targets for category A responses within 8 minutes (75 per cent) and category A and B responses within 19 minutes (95 per cent).

Source: NHS Information Centre

Cost-effectiveness

2.4 Between 2007-08 and 2009-10, ambulance services' emergency expenditure increased by 19 per cent, 'call connect' was introduced, and the volume of emergency incidents increased by 9 per cent.[5] As a result, the average cost per emergency incident for the ambulance service has increased from £200 to £220 over this period (**Figure 14**). This increase, of 10 per cent, is slightly higher than the 8 per cent increase in unit cost of other NHS activities covered by reference costs. The emergency cost per call varies between £144 in the North East and £216 in Great Western. The emergency cost per incident fell slightly in 2009-10 and varies from £176 in the North East to £251 in South Central (**Figure 15** overleaf). Differences are due to a range of factors, some of which are beyond the control of ambulance services, such as location and nature of accident and emergency departments and the legacy of funding arrangements, and some of which are within the control of ambulance services (discussed in Part Three).

2.5 **Figure 16** on page 27, shows a measure of labour productivity, incidents per full-time equivalent, over the last four years. It shows that productivity has changed little over this time. Labour productivity increased between 2006-07 and 2007-08 because urgent calls were included in the number of incidents. Since then productivity has decreased by 2 per cent. This measure has not been adjusted for the quality of care that patients receive.

Figure 14
Paramedic services unit costs

Unit cost (£)

	2007-08	2008-09	2009-10
Cost per incident	200	221	220
Cost per call	164	181	184
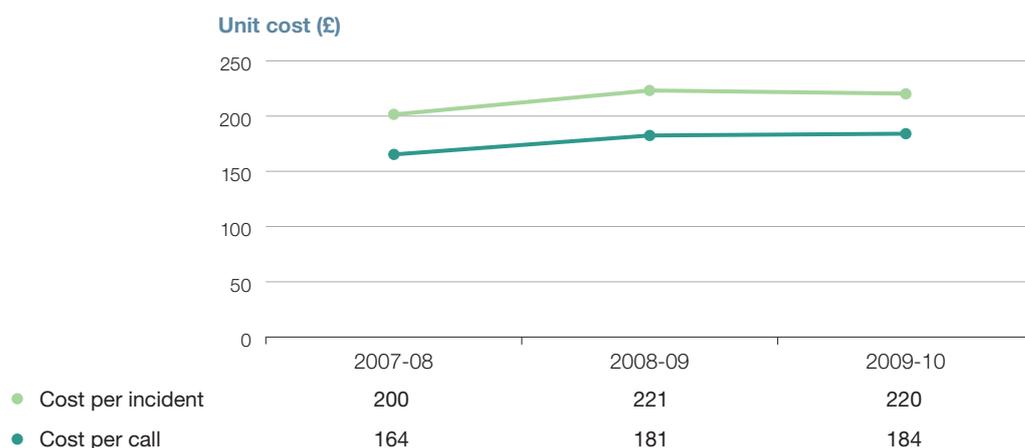
Source: National Audit Office analysis of reference cost data

5   A single incident may result from several calls and may have several responses dispatched to it.

Figure 15

Variations in cost per incident

Region	2007-08	2008-09	2009-10
North East	171	180	176
North West	177	193	197
East Midlands	202	203	202
West Midlands	180	187	204
South West	201	226	223
London	217	223	225
South East Coast	208	235	233
Great Western	204	239	235
Yorkshire	209	250	243
East of England	213	233	246
South Central	220	257	251

Cost per incident (£)

2007-08   2008-09   2009-10
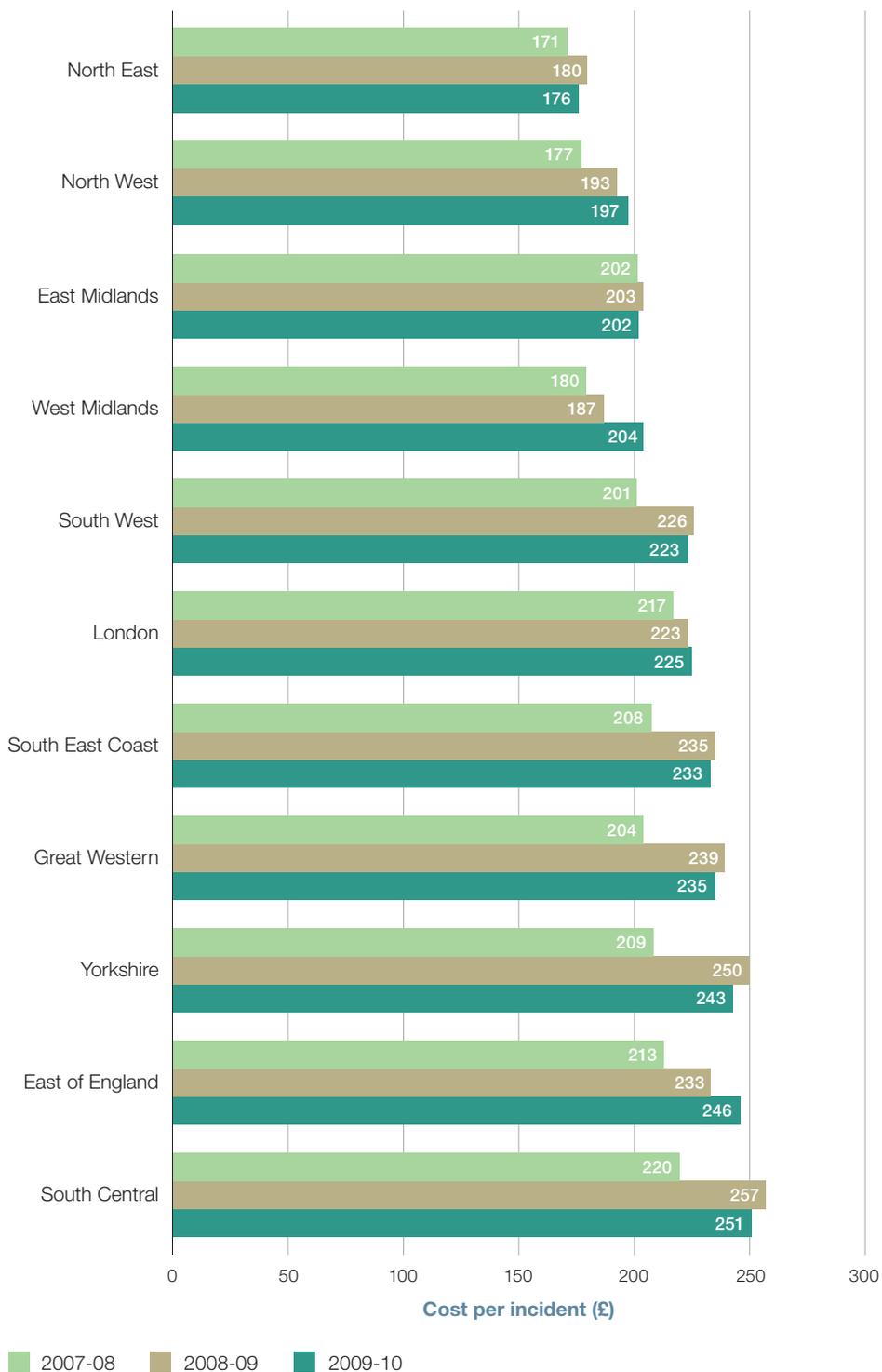
Source: National Audit Office analysis of reference cost data

Figure 16
Incidents per staff

Incidents attended per ambulance staff

	2006-07	2007-08	2008-09	2009-10
● Number of incidents responded to per ambulance staff	188	224	217	215
● Number of category A incidents responded to within 8 minutes per ambulance staff	50	53	51	52
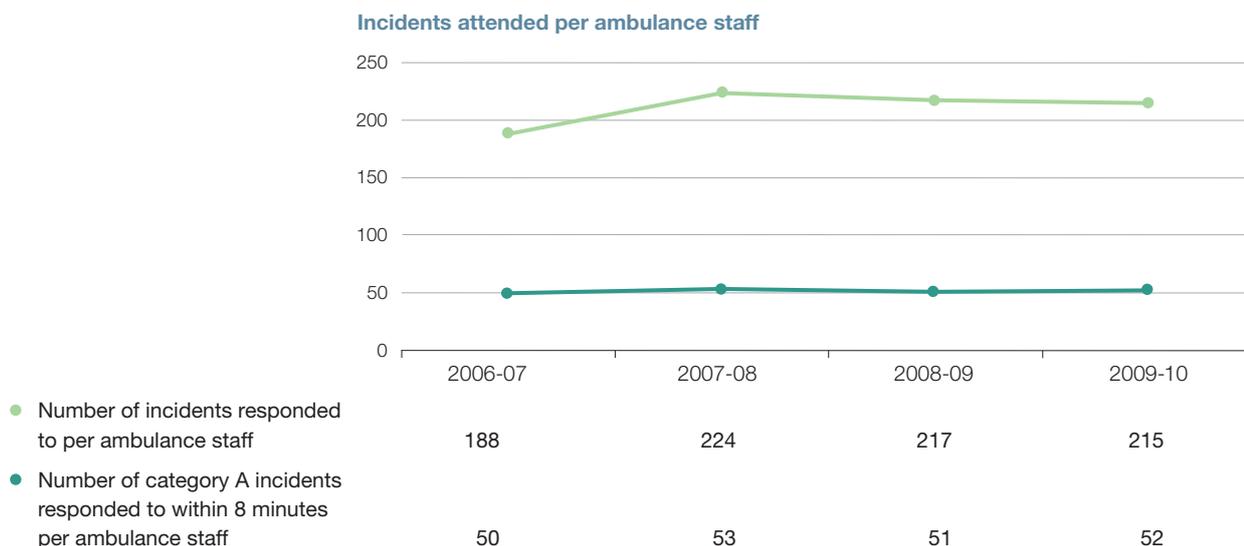
NOTE

1   Staff numbers includes qualified ambulance staff and support, and are full-time equivalents. Urgent calls are included in incidents from 2007-08. These measures have not been adjusted for quality.

Source: National Audit Office analysis of ambulance service data

Quality of care and outcomes

2.6   Ambulance services currently use surveys of patient satisfaction, levels of complaints and 'patient safety incident' reports as measures of service quality. For example:

- In 2009-10, England's ambulance service received 58 complaints per 100,000 incidents, fewer than Scotland (77) and Wales (101[6]);

- A 2004 national survey of '999' patients found that 98 per cent of patients rated their experience of the care they received as excellent, very good or good. Service responsiveness was at the heart of this experience. The survey has not been repeated because the scores were so high that they could not be used to inform how to improve services. A national survey of category C patients in 2008[7] found 98 per cent rated the service good or better and 88 per cent thought that the ambulance arrived promptly, although category C calls have no response time target; and

- The ambulance service recorded some 3,800 'patient safety incidents[8]' in 2009-10, 0.4 per cent of the NHS total.

6   Includes complaints about NHS Direct Wales.
7   Care Quality Commission, *Survey of category C ambulance service users* 2008.
8   Any unintended or unexpected incident which could have, or did, lead to harm for one or more patients receiving NHS-funded healthcare.

2.7 The category A 8-minute response time target is one of the most challenging in the world[9], and has led to better clinical outcomes for the small proportion of patients for whom fast response is potentially life-saving. Research found that, for people unconscious, not breathing or with acute chest pain, only for those in cardiac arrest (about 1 per cent of '999' patients) did 8-minute response times make a significant difference to survival-to-discharge, as opposed to survival-to-hospital, rates.[10] Other evidence suggests that further reductions in ambulance response times for stroke patients would not significantly improve clinical outcomes.[11] However, 29 per cent of callers are currently classified as requiring an 8-minute response time.

2.8 To date, feedback about the diagnosis and treatment decisions services make has relied on ad hoc initiatives. For example, London has collected data on cardiac arrest survival rates for a decade, which show an increase from 15 per cent in 2008-09 to 22 per cent in 2009-10. The service attributes this increase to maintaining their response times, investing in training and upgrading their triage system.

2.9 Response time targets became less dominant from 1 April 2011, since ambulance services and their partners are now also measured specifically on survival-to-discharge rates as part of a set of clinical quality indicators (**Figure 17**)[12], which in some cases build on existing clinical performance indicators for conditions such as stroke. This is in line with previous National Audit Office recommendations.[13]

2.10 The emergency services must now quickly develop procedures for collecting and sharing information across organisations to measure performance. The key is for data systems that can link different organisations. The electronic patient record forms being piloted in some areas will make it easier to track patients through the system and for information to be shared. The Scottish Ambulance Service introduced these forms in all ambulances in 2008, which have been useful in terms of clinical audit. Pilots have been successful in transferring the data to hospitals prior to patient arrival. However, full roll-out has been delayed by problems with the interfaces between different hospital systems.

9   Office of the Strategic Health Authorities, *Emergency services review: a comparative review of ambulance service best practice*, 2009.
10 University of Sheffield, *The cost and benefits of changing ambulance response time standards – final report to the Department of Health*, 2006.
11 Comptroller and Auditor General's report, *Progress in improving stroke care*, HC 291 Session 2009-10.
12 Department of Health, *Equity and excellence: liberating the NHS*, Cm 7881, 2010.
13 Comptroller and Auditor General's reports, *Major trauma care in England*, HC 213 Session 2009-10 and *Progress in improving stroke care*, HC 291 Session 2009-10.

Figure 17

Clinical quality indicators for ambulance services

Outcome from acute myocardial infarction

Outcome from cardiac arrest

Outcome from cardiac arrest survival-to-discharge

Outcome – stroke (ambulance contribution by timely arrival of patients at acute stroke centres)

Quality of care by proportion of calls closed with telephone advice or managed without transport to accident and emergency (where clinically appropriate)

Quality of care by re-contact rate following discharge of care i.e. closure with telephone advice or following non-conveyance (within 24 hours)

Safety of '999' call handling (measured by call abandoned before call answered)

Safety of '999' call handling (measured by median time to answer call)

Service experience by narrative of patient feedback and impact on service design and delivery

Safety by category A 8-minute response time

NOTE
1   Ambulance services report on the speed with which these treatments are delivered.

Source: Department of Health

Part Three

Scope for improvement

3.1   This part of the report discusses the potential for improvement, distinguishing between the key factors that impact on performance:

● within the control of ambulance services, such as staffing and financial management; and

● those which require collaboration, such as congestion in hospital accident and emergency departments.

It also presents estimates of the financial savings from changing the response model.

Scope for improvement within ambulance services' control

Staffing

3.2   The availability and deployment of ambulance staff with appropriate skills, using the most efficient shift and rota patterns, has a major impact on the service's ability to meet its performance targets and minimise unnecessary patient visits to accident and emergency departments.

Utilisation of ambulance crews

3.3   Services need to have a clear understanding of the extent to which crews are being utilised. This will vary between types of vehicle and between rural and urban areas within the service, which makes it harder for ambulance services to decide whether performance is good. However, services measure their staff utilisation in different ways: some use the average number of times a crew is called out in a given hour; some use the number of hours worked as a proportion of hours available; but some services use neither. This means that performance in relation to staff utilisation cannot be compared across the sector.

Skills mix and deployment of ambulance staff

3.4   Some ambulance services told us that in the past it was normal for the same amount of resource to be 'on' for the whole 24 hours, even though hourly call demand may vary by a factor of three. Over the last few years, services have improved the way they model demand against capacity. As a result, services are revisiting their preferred pattern of 12-hour shifts with varying lengths of shift and start times, and deploying crews to 'standby' points rather than ambulance stations.

3.5 Advanced practitioners offer the greatest scope for treatment by ambulance staff. Research at the time of their introduction, identified potential reductions in transfer of patients to accident and emergency departments of 30 per cent by treating them at the scene.[14] They are able to generate large savings through responding to calls from nursing and residential homes, for example, which are often sources of unnecessary hospital admissions.[15] In practice, however, ambulance services have tended to use advanced practitioners alongside paramedics, without targeting them where they can have the greatest impact on conveyance rates.

3.6 Some ambulance services are using, or considering using, advanced practitioners in ways that will make greater use of their skills. However, many have experienced retention problems and one service no longer employs them. Only two services were able to supply us with data on how their practitioners are deployed. In these services, practitioners treated 13 per cent of patients at the scene while only attending 6 per cent of incidents. This impact was clearer in the service that was targeting practitioners at those cases offering most scope for treatment at the scene. Evidence suggests that the call categorisation system currently in use in most services is not sophisticated enough to direct practitioners to the most suitable calls.[16]

Increasing staff availability by reducing the level of 'relief'

3.7 All ambulance services are concentrating efforts to reduce the level of additional working required to cover shift time lost to leave, sickness and training. However, overtime working ('relief' work) to cover for lost time is still part of the standard shift pattern. Overtime is also used to cover vacancies, shift overruns and to address peaks in demand. In 2009-10, the overtime hours worked by ambulance staff was equivalent to almost 2,000 extra full-time ambulance staff, at a cost of nearly £80 million a year.

3.8 Since leave and a core level of training are mandatory, the main area where the need for overtime can be reduced is through reducing sickness rates. Sickness rates in the ambulance service are higher than the NHS as a whole. There are some good reasons for this – ambulance work by its nature carries an increased risk of musculo-skeletal injury and violence – but services also recognise that there is a cultural issue around short-term sickness. For example, some areas that were formerly independent ambulance services continue to have very different levels of sickness absence five years after consolidation.

14 Skills for Health, http://www.skillsforhealth.org.uk/about-us/resource-library/doc_details/87-cs-10-10-ecp-case-study.html

15 University of Sheffield, *A Multi-centre community intervention trial to evaluate the clinical and cost effectiveness of Emergency Care Practitioners*, 2009.

16 Gray and Walker, *AMPDS categories: are they an appropriate method to select cases for extended role ambulance practitioners?* Journal of Emergency Medicine, 2008.

3.9 The current level of sickness absence across the ambulance service is similar to the rate in 2005, although services have put in place a range of measures such as compulsory return-to-work interviews and revamped occupational health provision. The sickness absence rate for ambulance staff varies by 60 per cent between ambulance services (**Figure 18**). If all services achieved the sickness absence rate of the best service (4.95 per cent in 2009-10) this would create an additional 121,865 days of ambulance staff availability (467 full-time equivalents), equivalent to a saving around £15 million a year in salary costs.

Figure 18
Ambulance service and NHS sickness absence, July 2009 – June 2010
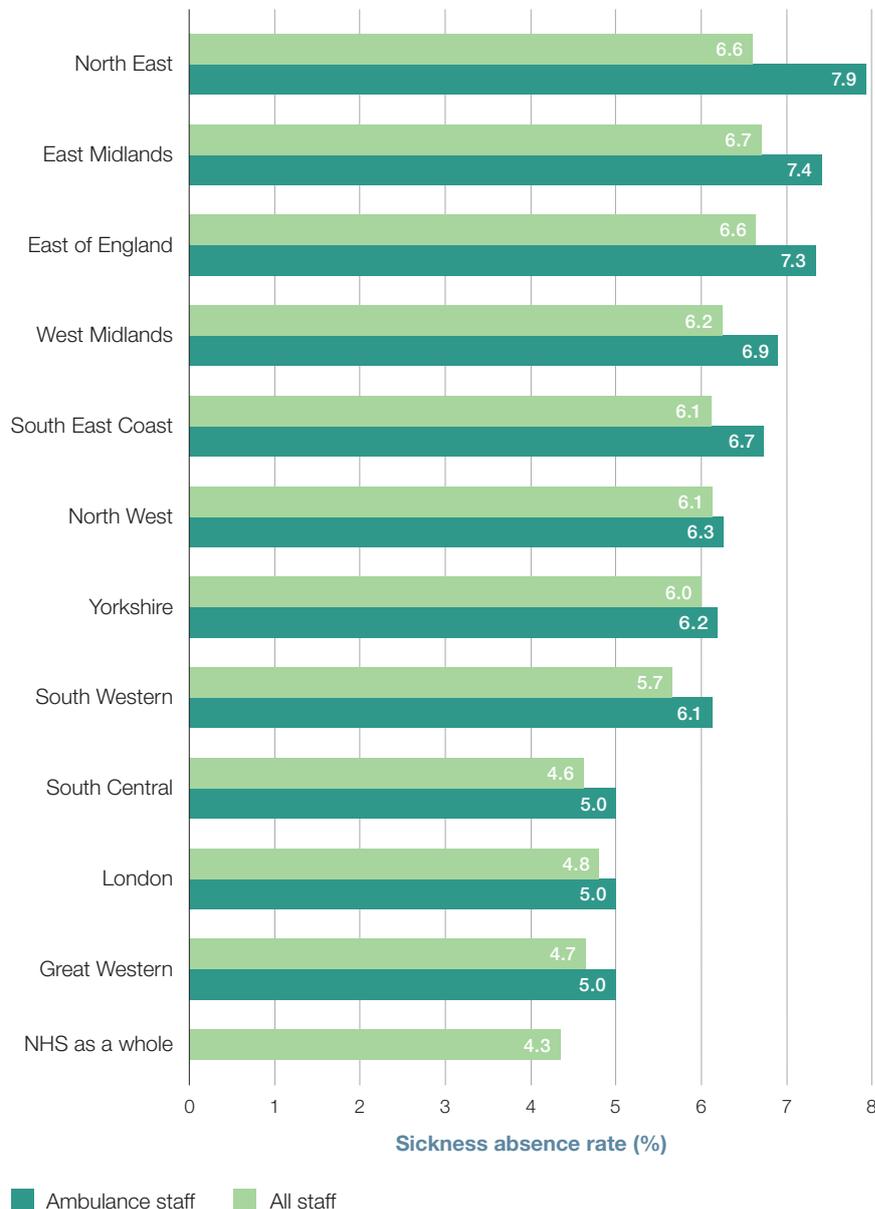
Source: National Audit Office analysis of NHS Information Centre data

Response models

3.10 Ambulance services have organised themselves in different ways in response to the category A 8-minute target. Services often mobilise more than one vehicle immediately on receiving a call so that the dispatch is running in parallel to assessing the call. This may happen for a number of reasons, for example, because a rapid response vehicle is dispatched but the patient may need transportation which the rapid response vehicle cannot provide. In 2009-10, more than one response was allocated to 49 per cent of incidents (3.2 million). This percentage varies between services (**Figure 19**) because different services have different allocation policies. The new clinical quality indicators provide an opportunity for services to reassess their response and operational models.

3.11 Many ambulance services have a policy of mobilising the closest vehicle to the scene, irrespective of type, whereas others only send a rapid response vehicle to some calls unless staff indicate the need for back-up. In 2010-11, some 2.6 million vehicles were activated then cancelled. Some services have recognised the benefit of reducing the number of vehicles per incident in some geographical areas. For example, South Central reduced its response ratio in Hampshire from 1.3 to 1.15, more in line with other areas within the service, saving about £80,000 a month.

Figure 19

Percentage of incidents where more than one vehicle was allocated, 2009-10
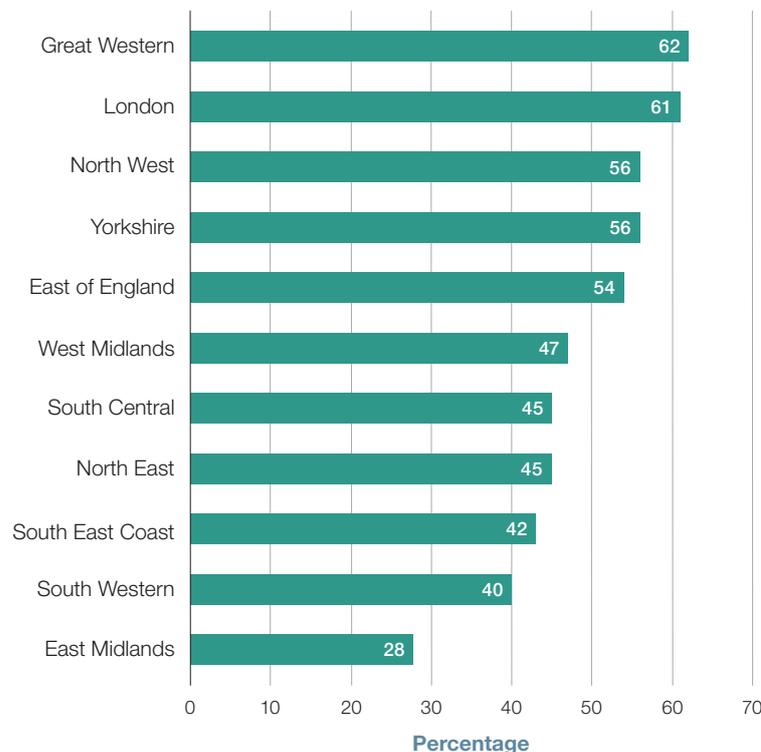
Source: National Audit Office analysis of ambulance service data

3.12 Ambulance services can manage demand at three points in the call cycle: 'hear and treat'; 'see and treat'; and conveyance of patients to a range of destinations. Reforms to each offer considerable benefits (**Figure 20**). There is considerable variation across services as to how much of each is undertaken (**Figure 21**).


Figure 20
The benefits of managing demand through the call cycle

Key areas where the response model can be transformed		
Hear and treat	**See and treat**	**Alternative destinations**
Resolution of calls using telephone clinical assessment without the need to dispatch a vehicle	Resolution of incident at the scene without the need to convey to another provider	Conveyance of patients to an alternative destination such as a minor injuries unit
Key benefits		
Ambulance sector		
• Reduction in the number of dispatches	• Reduction in call cycle as no journey or turnaround	• Reduction in handover times
• Incidents are dealt with more promptly	• More effective uses of crew's clinical skills	• Potential reductions in journey times
Wider NHS		
• Most appropriate pathways chosen	• Substantial reduction in emergency attendances	• Lower cost setting for attendance
• System capacity is better utilised	• Potential reduction in hospital admissions	• Reduction in hospital admissions
• Reduction in emergency attendances		
The patient		
• Appropriate and immediate resolution	• More immediate access to clinical treatment	• Improved convenience and choice
• Care closer to home	• Shorter treatment times	• Shorter treatment times
	• Signposting to most appropriate setting	• More coordinated patient service
	• Care closer to home	• Care closer to home
Potential annual savings to the NHS (net)		
£40-£80 million	£15-£110 million	£45-£90 million

Source: National Audit Office literature review and National Audit Office-commissioned work undertaken by Deloitte

Figure 21

Number of calls and methods of resolution, 2009-10

Legend:
- Calls received
- Emergency patient journeys
- Patients treated at the scene
- Calls resolved through telephone advice

London
- Calls received: 1,480
- Emergency patient journeys: 762
- Patients treated at the scene: 168
- Calls resolved through telephone advice: 66

North West
- Calls received: 1,064
- Emergency patient journeys: 741
- Patients treated at the scene: 164
- Calls resolved through telephone advice: 19

West Midlands
- Calls received: 844
- Emergency patient journeys: 506
- Patients treated at the scene: 203
- Calls resolved through telephone advice: 26

East of England
- Calls received: 778
- Emergency patient journeys: 431
- Patients treated at the scene: 245
- Calls resolved through telephone advice: 22

Yorkshire
- Calls received: 711
- Emergency patient journeys: 471
- Patients treated at the scene: 126
- Calls resolved through telephone advice: 20

East Midlands
- Calls received: 693
- Emergency patient journeys: 402
- Patients treated at the scene: 185
- Calls resolved through telephone advice: 20

South East Coast
- Calls received: 619
- Emergency patient journeys: 393
- Patients treated at the scene: 175
- Calls resolved through telephone advice: 12

South Central
- Calls received: 495
- Emergency patient journeys: 247
- Patients treated at the scene: 140
- Calls resolved through telephone advice: 15

South Western
- Calls received: 436
- Emergency patient journeys: 248
- Patients treated at the scene: 125
- Calls resolved through telephone advice: 12

North East
- Calls received: 432
- Emergency patient journeys: 279
- Patients treated at the scene: 82
- Calls resolved through telephone advice: 16

Great Western
- Calls received: 296
- Emergency patient journeys: 172
- Patients treated at the scene: 85
- Calls resolved through telephone advice: 4

Number (000s)

NOTE

1   Data include calls resolved over the phone by call-handlers.

Source: Analysis of ambulance service data

Hear and treat

3.13 The proportion of calls resolved over the phone doubled between 2007-08 and 2009-10.[17] They are resolved either by referral to clinicians in the call centre, the call-taker, or transfer to NHS Direct. In 2009-10, 230,500 calls in total were resolved through telephone advice[18] (3 per cent of calls received by the service). The large majority of these were through formal arrangements between eight of the ambulance services and NHS Direct. Less than 10 per cent of these were referred back to the services by NHS Direct.

3.14 'Hear and treat' (Box 1) interventions err on the side of caution. For example, for 84,000 calls referred for telephone advice in 2009-10, an ambulance response was nevertheless sent. But only 17 per cent of these cases required patient transportation.

3.15 The North East Ambulance Service operates call-handling software called NHS Pathways which assesses the patient's symptoms on a different basis to non-NHS software used by other services. NHS Pathways classifies a smaller percentage of calls as category A (24.6 per cent versus 28.8 per cent elsewhere, equivalent to 314,000 fewer category A calls in 2009-10 across the service), thus increasing the opportunities for 'hear and treat' and 'see and treat' by service staff. Although evaluation confirmed this software as clinically safe in 2008[19], it is only being introduced more widely from March 2011. Moreover, only eight services plan to, or have, introduced NHS Pathways.

See and treat

3.16 In 2009-10, 1.7 million emergency incidents were treated at the scene by ambulance services (Box 1). This varied between 17 and 37 patients per 100 incidents attended by services. Neither the number of patients treated at the scene, nor the number of emergency and urgent journeys per hundred incidents, changed substantially between 2007-08 and 2009-10.[20] More patients are treated at the scene in rural areas, implying that crews in these areas are more willing to use their training to treat people at the scene because of the long distances involved in accessing other services.

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17   Not all ambulance services provided 2007-08 data and prior to 2009 there was no national definition.
18   This includes calls resolved over the phone by call-takers.
19   It has also been recommended by professional bodies such as the British Medical Association.
20   Not all ambulance services provided 2007-08 data.

See and convey

3.17 In 2009-10, there were 4.7 million emergency patient journeys. The proportion varied from 64 to 83 emergency journeys per 100 incidents across services.[21] The final destination of the patients includes accident and emergency departments, specialist centres, minor injuries units or walk-in centres (discussed in paragraphs 3.33 and 3.34, page 41).

Financial drivers for improved efficiency

3.18 Ambulance services on average receive high marks for their financial standing in the Audit Commission's Auditors' Local Evaluations, both in absolute terms and in comparison with hospital trusts.

3.19 Ambulance services will be required to achieve significant efficiencies in the future. Services' commissioners set the ambulance service a target of £97 million of efficiency savings (5 per cent of income) for 2010-11. Individual services' targets vary from 3 per cent to 10 per cent. Those with higher targets have above-average reference costs (see Figure 8, page 17).

3.20 The cost improvement plans of ambulance services show how they intend to achieve the annual 4 per cent efficiency savings required of all NHS trusts.[22] They contain common themes to increase the efficiency of front-line resources, which reflect the issues we identified in paragraphs 3.2 to 3.9 on pages 30 to 32, with challenging implications for management of staff: reorganisation of shift patterns and rosters; reduced sickness absence; changes in skill-mix of staff; and headcount reductions.

Box 1
Case examples

1 Hear and treat

A patient has a nasty cut to the arm. The over-the-phone assessment identifies that the cut is in a non-dangerous area and the blood loss is not severe. The size indicates it probably needs stitching. The call-taker's assessment triggers a search on the directory of services and then the patient is referred to a minor injuries unit with the facilities they need, close to their home.

2 See and treat

An elderly person has fallen at home. An advanced practitioner, sent to the scene, is able to check the cause of the fall, inject local anaesthetic, apply stitches and ensure the patient has painkillers and advice cards. The practitioner can then contact the patient's GP, providing them with a copy of the clinical record and book a follow-up appointment with the district nurse to remove the stitches. This prevents the patient having to make an unnecessary trip to hospital and ensures they receive the correct follow-up treatment.

Source: NHS Confederation, Seeing ambulance services in a different light, June 2010

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21 Includes calls from healthcare professionals, 94 per cent of these calls result in patient transportation to hospital.
22 Department of Health, *The Operating Framework for the NHS in England 2011-12*.

3.21 In common with other NHS trusts, by April 2014, ambulance services will need to be approved as foundation trusts by Monitor, the independent regulator, if they wish to continue to operate as separate entities. Ambulance services are at different stages in this process; the first two received foundation trust status in March 2011. We found that the application process helps to promote a culture of strong financial management and robust longer-term business plans.

The role of rurality

3.22 Rural areas present inherent challenges for an efficient, fast-responding service because calls are less frequent and widely spaced. When performance is broken down to the level of individual primary care trusts, we found that in 2009-10, the category A 8-minute response target was met in only one-quarter of the most rural 25 per cent of primary care trusts. In comparison, the target was met in just under two-thirds of the most urban 25 per cent (**Figure 22**). There was, however, a wide range of performance even in areas with the same level of population density and population clustering, which indicates there is scope for services containing more rural areas to learn from each other.

Figure 22

Performance against the category A 8-minute response target for primary care trusts, by level of rurality, 2009-10

Percentage responded to within 8 minutes
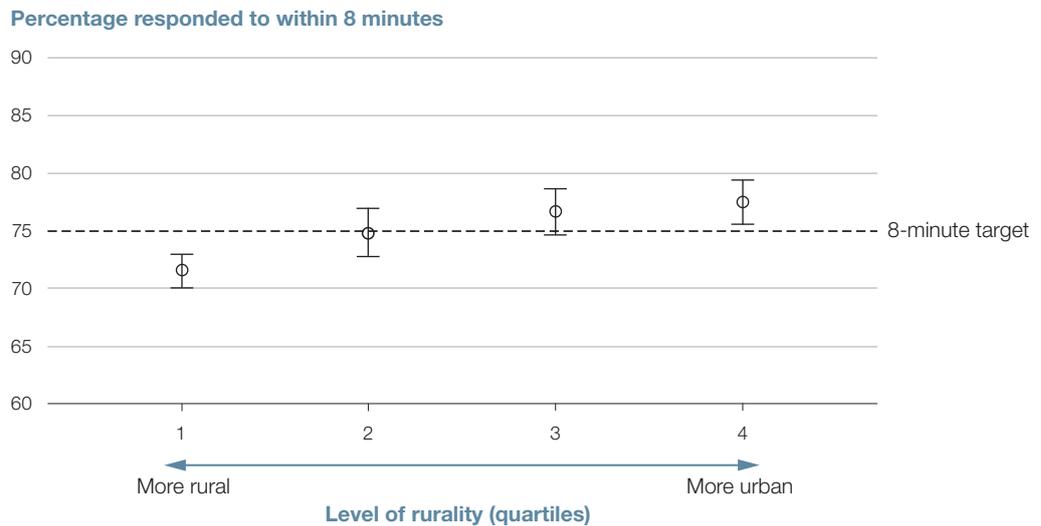
	1	2	3	4
Upper	72.9	76.9	78.6	79.4
Mid-point	71.5	74.8	76.5	77.4
Lower	70.0	72.7	74.5	75.5

NOTE

1 The circle represents the mean and the bar represents two standard errors. The maximum and minimum values may fall outside these ranges.

Source: National Audit Office analysis of ambulance service data

Scope for improvement requiring collaboration

Reducing Demand

3.23 Ambulance services are working with partners to reduce demand. The key Departmental initiative to which services are contributing is the introduction of the '111' number which provides an alternative for those callers who do not have immediately life-threatening conditions and should help to ensure that ambulance resources are directed to those who have a medical emergency and require an immediate response. Pilots began in 2010 in Lincolnshire, Nottingham City, Luton and Durham and Darlington. NHS Direct are hosting the service in the first three, North East Ambulance Service in the latter. Local commissioners decide on the speed of roll-out in their area, the size of each project, the provider, and which software will be used. It is too soon to see an impact on '999' call volumes.[23] Strategic health authorities' plans forecast that 40 per cent of the population will be covered by April 2012, but some are not on course to deliver against this timescale.

3.24 Many ambulance services also work with partners to reduce calls from particular patient groups. For example, falls account for over 10 per cent of calls. In some areas, falls teams have been established by the ambulance service in conjunction with social care, whilst in others areas primary care trusts have established them to provide an advice and prevention service to people at risk of repeat falls. The ambulance service is then able to refer patients to these teams.

Data

3.25 The ambulance service collects a wide range of performance data. However, we found that different interpretations of data requested by the NHS Information Centre, different computer-aided dispatch systems and recording of information by users, and differences in the way ambulance services define some metrics, for example, conveyance rates and utilisation rates, limit its reliability and use. The ability of services to generate some performance information also varied. In addition, the quality of data on treatment costs is variable, which could undermine attempts to introduce a charging system based on treatment administered. A national ambulance information group was established in 2010 to address these issues.

3.26 Commissioners need to be able to monitor contract performance effectively. Some have specified a minimum data set within their contract, but there is no standard set across the service.

23   University of Sheffield, *Evaluation of NHS 111 pilot sites First Interim Report*, May 2011.

3.27 No ambulance services can currently accurately identify the final treatment pathway of the patient. This information is required to monitor progress in conveying people to the most appropriate places of care. Published ambulance data[24] include information about the final destination of some patients, but are incomplete. Hospital data are unable to ascertain which type of facility treated a patient brought in by ambulance.

Sharing best practice

3.28 Coordination across ambulance services has improved substantially over the last few years with regular meetings between chief executives, directors of operations and other key members of staff. Effective collaboration takes place across a number of areas such as procurement and emergency planning. Whilst they also share best practice, cultural differences between the services and differences in data definitions inhibit the take-up of good practice. Services told us of their concerns that the sharing of best practice may be inhibited if services envisage being in competition with one another in the future.

Congestion in hospital accident and emergency departments

3.29 Advantages gained by ambulances responding to calls quickly can be lost at the end of the journey. The average time taken at hospital for staff to handover the patient and turnaround for another call varies across services between 20 and 35 minutes. Data for 2010-11, suggests that at least one-fifth of emergency transports to hospitals result in patient handovers that take over the expected time of 15 minutes.[25] One ambulance service estimated that, based on the current level of delays, £4 million per year is required in additional resources due to hospital congestion. Our analysis suggests that delays in handover time impact more on response times to less serious calls. Ambulances diverted from overcrowded accident and emergency departments are also significantly correlated with slower response times in London.

3.30 Congestion at hospital accident and emergency departments impacts on ambulance performance. Increased levels of queuing by ambulances over the period November 2010 to February 2011, had a significant correlation with declining national performance against category A and B targets in most parts of the country. It is notable, however, that West Midlands was able to maintain performance despite accounting for 39 per cent of all queuing occurrences during the period.[26]

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24   By the NHS Information Centre.
25   This figure is a minimum since handover times are not always recorded.
26   Diverting ambulances from accident and emergency departments only had a significant correlation with declining performance against the category B target because of the extent of the problem in London, where one-third of all diverts occurred.

3.31 Ambulance services, commissioners and acute trusts have, or are, introducing a range of measures to reduce handover times including:

- display screens in hospitals so that staff know when to expect ambulance crews arriving;

- handover buttons at hospitals that are pressed when the patient has been handed over to the hospital;

- agreed escalation policies if handover times exceed the recommended limit; and

- reports sent to acute trusts' chief executives and strategic health authorities to highlight poor performance.

3.32 Some commissioners require ambulance services to reduce turnaround times at hospitals under threat of financial penalty to encourage crews to make themselves available as soon as possible after handing over patients, while others have penalised hospitals for failing to accept patients from ambulances promptly. But these are not common practice across commissioners.

Access to non-emergency facilities

3.33 Access to facilities that can provide cheaper destinations offering more appropriate care for some patients can be hindered by the need for a number of different factors to be in place:

- The right services being available and visible to ambulance staff.

- Protocols in place for staff to drop off patients when appropriate. This requires the formal approval of the ambulance service, the service provider and their respective commissioners. Providers and commissioners do not always agree to such arrangements.

- Ambulance staff using the services as intended.

3.34 Alternatives to transporting patients to accident and emergency departments can be provided most effectively for patients when there is an electronic directory of services which informs staff of alternative services available, underpinned by information about health and social services, their capabilities and real-time capacities. The North East Ambulance Service's 'hear and treat' figures doubled, from 8,000 to 16,000 a year, after it introduced such a system. Most ambulance services have yet to introduce such a system, and instead work on an ad hoc basis or have a paper-based directory of services to which call-takers can refer. Work to develop this information is linked to the introduction of the '111' non-emergency number in local areas and the pace of progress varies widely. Ambulance services rely on these directories being populated by primary care trusts, GPs and other local health providers.

Realising the benefits of an improved response model

3.35 We commissioned work on the financial implications for ambulance services and the wider NHS in changing their response to emergency calls at three critical points: when the call is received; when the vehicle arrives at the scene; and when deciding which destination would be most appropriate for the patient. A number of scenarios were constructed of how these interventions might be applied by 2015-16 (**Figure 23**), based on forecasts supplied by ambulance services, as well as discussions with commissioners and data produced by the NHS Information Centre.

Figure 23
Scenarios for realising the benefits of changes to the ambulance service response model

Source of savings (£m)

Who realises benefits (£m)

- ■ Hear and treat
- ■ See and treat
- ■ Alternative destinations

- ■ Savings to ambulance trust
- ■ Savings to wider NHS

NOTE
1   Available on our website at www.nao.org.uk

Source: National Audit Office-commissioned work undertaken by Deloitte

3.36 These scenarios, combined with a range of data and assumptions on unit costs, produced a range of indicative savings from £100 million a year, based on a very conservative prediction of service performance, to £280 million a year (both in 2009-10 prices) on the assumption that services will meet the highest aspirations. If in five years all ambulance services were to achieve the best that is currently being achieved by a service in each category of performance (with, say, urban services treating as high a proportion of patients at the scene as rural services do) the savings would be an estimated £165 million a year. In all scenarios, most of these savings would accrue to other NHS organisations and realising these savings will require their cooperation.

3.37 There are a number of factors which need to be in place to realise these benefits, and which will place a constraint on the ability to realise savings at the upper end of the scenarios presented:

- the need to maintain a strong culture of clinically safe behaviour;

- ensuring staff have the right skills and the confidence to use them;

- encouraging staff to use triaging techniques when appropriate, even when less effective solutions are more convenient;

- strategic commissioning that recognises costs and benefits across the emergency care sector, and incentivises the right behaviour;

- the need to actively decommission health services which would receive less use if more appropriate care solutions were available;

- availability and visibility of non-emergency destinations; and

- the need to manage the public's expectations in relation to ambulance services, particularly in relation to being taken to hospital.

Appendix One

Methodology

Method	Purpose
Data analysis	
Including funding and performance data	To identify ambulance service and individual organisational performance and trends in:
	● Funding, expenditure, staffing
	● Performance against targets
	● Call cycle performance
Interviews with ambulance services	
We visited all 11 services and interviewed key members of staff including chief executives and directors of operations	To identify:
	● Key challenges faced by the ambulance service
	● Reasons for performance trends identified by our analyses
	● Good practice in delivering cost-effective services, reducing demand, managing performance and moving towards a more clinically-led service
Interviews with key stakeholders	
Including the Department of Health and primary care trust commissioners	To identify:
	● Incentives within the system that drive value for money improvements
Literature review	
A review of the literature on ambulance services	● Key challenges faced by the ambulance service
Modelling work	
We commissioned Deloitte to undertake this work	To identify the potential benefits to the ambulance service and the wider NHS from changes to its response model

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