National Audit Office

Report
by the Comptroller
and Auditor General

NHS England

NHS Ambulance Services

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NHS England

NHS Ambulance Services

Report by the Comptroller and Auditor General

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Sir Amyas Morse KCB
Comptroller and Auditor General
National Audit Office

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This report reviews the progress that the NHS ambulance services have made since our previous report and that of the Committee of Public Accounts. This report assesses whether NHS ambulance services are providing value for money.

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Contents

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Key facts

£1.78bn

the cost of urgent and emergency ambulance services provided by NHS ambulance trusts in England, in 2015-16

10.7m

calls and NHS 111 transfers to the ambulance service in England, in 2015-16

6.6m

incidents resulting in a face-to-face attendance by the ambulance service in England, in 2015-16

72.5%	of the most serious (Red 1) calls responded to within 8 minutes in 2015-16, against a target of 75%
10.4 percentage points	difference between the proportion of Red 1 calls responded to within 8 minutes, at the best- and worst-performing trusts in England in 2015-16
5.2%	average annual growth rate in demand (calls and NHS 111 transfers) for ambulance services since 2011-12
500,000	ambulance hours lost due to delayed transfers of care at hospitals in 2015-16
52%	of patients taken by ambulance to hospital who were then admitted in 2015-16, compared with 48% in 2007-08
4% to 46%	variation in the percentage of incidents in which an ambulance was deployed and later stood down, across trusts in 2015-16

Summary

1 In England, 10 regionally based ambulance trusts provide urgent and emergency healthcare, with separate arrangements for the Isle of Wight. Trusts may also provide a range of other services, such as patient transport and NHS 111. In 2015-16, these services cost about £2.2 billion, of which £1.78 billion was for urgent and emergency services. In 2015-16, the ambulance service received 9.4 million urgent or emergency calls and 1.3 million transfers from NHS 111, which together resulted in 6.6 million face-to-face attendances.

2 Since April 2011, performance of all ambulance trusts in England has been measured against 11 ambulance quality indicators, with seven ambulance systems indicators (such as response times) and four clinical outcome indicators (broken down into eight measures). Since July 2012, ambulance responses have been split into the following categories:

- Red calls – where the patient's condition is considered to be life-threatening. Red 1 calls are the most time-critical, and cover cardiac arrest patients who are not breathing and do not have a pulse, and other severe conditions such as airway obstruction. Red 2 calls are serious but less immediately time-critical, and cover conditions such as stroke and heart attack. For Red 1 and Red 2 calls, the ambulance service has a target of an emergency response arriving at the scene within 8 minutes in 75% of cases. If onward transport is required, a vehicle capable of conveying the patient should arrive at the scene within 19 minutes in 95% of cases.

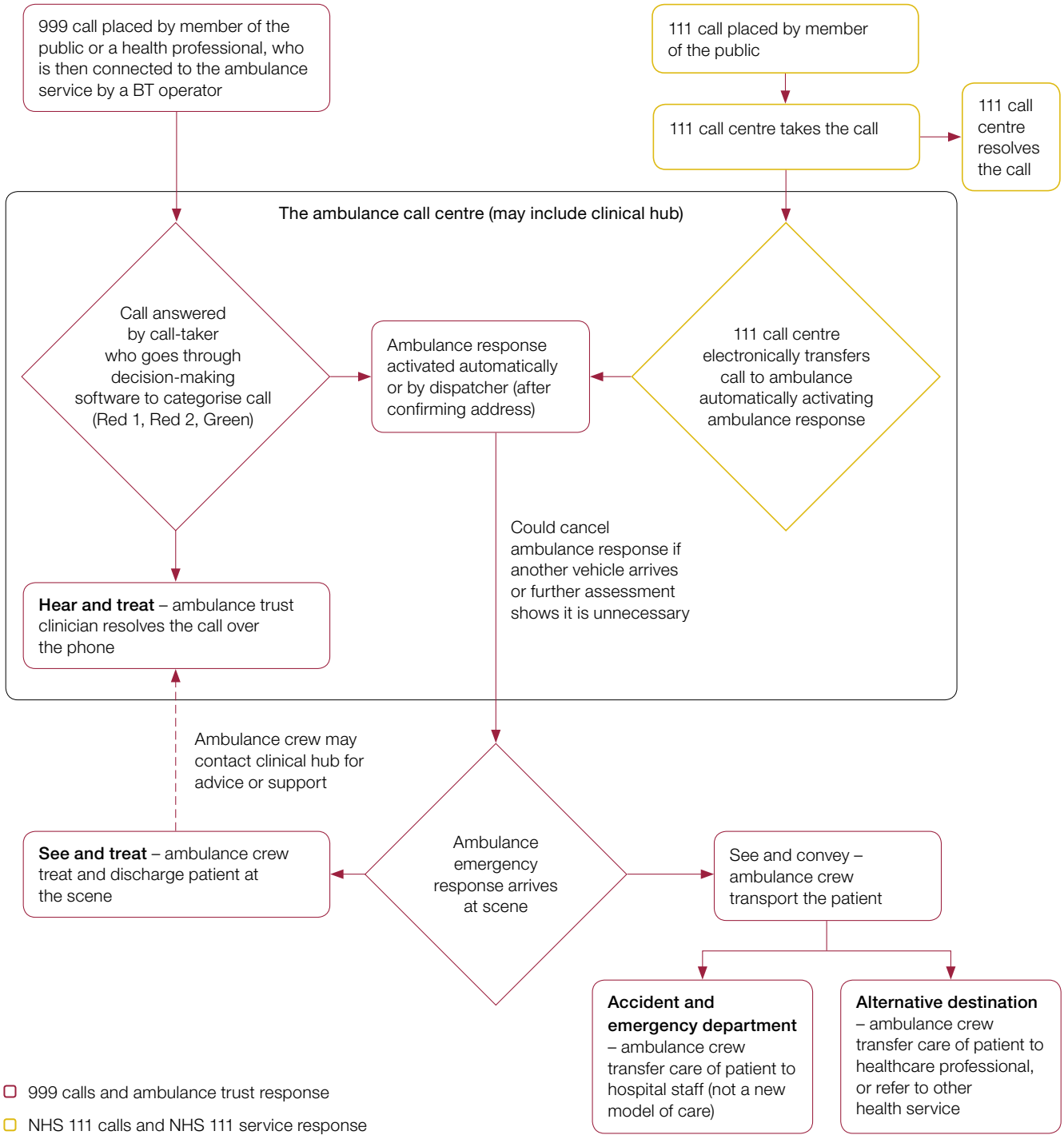
- Green calls – where the patient's condition is considered not to be life-threatening. Ambulance trusts split these calls into different categories depending on the seriousness of the condition. Locally agreed targets are in place for these calls.

3 In 2013, NHS England launched the Urgent and Emergency Care Review. This ongoing review aims to address concerns that accident and emergency departments and ambulance services are under intense, growing and unsustainable pressure. It has set out NHS England's ambition for urgent and emergency care to be provided as 'close to home' as possible. The ambulance service has a pivotal role to play in the performance of the entire urgent and emergency care system, as a conduit to other services and helping patients access the facilities they need close to their home. For ambulances, this means utilising new models of care rather than taking patients to hospital. The new models of care are: resolving calls over the phone by providing advice to callers (known as 'hear and treat'); treating patients at the scene (known as 'see and treat'); and taking patients to non-hospital destinations (**Figure 1** overleaf). Our previous report on ambulance services, published in 2011, highlighted the potential financial benefits to both ambulance trusts and the wider NHS of increasing the use of new models of care.[1]

1 Comptroller and Auditor General, *Transforming NHS ambulance services*, Session 2010–2012, HC 1086, National Audit Office, June 2011.

Figure 1

Stages of an ambulance response, including NHS 111 activity



Note

1 111 is the NHS non-emergency number.

Source: National Audit Office data

4 Our report provides an update on our 2011 report, *Transforming NHS ambulance services*. In particular, it examines:

- the challenges facing the ambulance service in England (Part One);
- the performance of the ambulance service since we last reported (Part Two); and
- the extent to which the ambulance service is maximising its impact and supporting the challenges facing the wider health system (Part Three).

5 This report does not cover non-urgent patient transport services (for example, transport to outpatient appointments), NHS 111 services (apart from their impact on urgent and emergency ambulance services), air ambulance services or ambulance services in the Isle of Wight (unless stated). The Committee of Public Accounts took evidence on our previous report in 2011. We assess progress against the Committee's recommendations in Appendix One. We set out our audit approach in Appendix Two and our evidence base in Appendix Three.

Key findings

6 **Demand for ambulance services continues to grow rapidly.** Between 2009-10 and 2015-16, the number of ambulance calls and NHS 111 transfers increased from 7.9 million to 10.7 million, an average year-on-year increase of 5.2%. Contributing factors to this rising demand may include: increasing numbers of elderly patients with multiple conditions; an increasing number of alcohol- and mental health-driven issues; the availability of primary care services in the community and how patients seek help. However, there is limited evidence of what works in managing these demand factors (paragraphs 1.10 and 1.11).

7 **Increased funding for urgent and emergency activity has not matched rising demand, and future settlements are likely to be tougher.** Between 2011-12 and 2015-16, income for ambulance trusts' urgent and emergency care activity increased by 16% from £1.53 billion to £1.78 billion. Over this period, activity (ambulance calls and NHS 111 transfers) rose by 30%. Commissioners have warned that, given current financial challenges in the wider health service, future funding settlements are likely to be tighter (paragraph 1.12).

8 **Ambulance trusts face resourcing challenges that are limiting their ability to meet rising demand.** Most trusts are struggling to recruit the staff they need and then retain them. The reasons people cite for leaving are varied and include pay and reward, and the stressful nature of the job. In 2015, ambulance trusts had a paramedic vacancy rate of 10%. Health Education England has set up a programme to train more paramedics and to upskill current ambulance staff but trusts and other stakeholders are concerned that this will not be enough to meet rising demand and fully implement new models of care (paragraphs 1.17 to 1.19).

9 **In 2015-16, approximately 500,000 ambulance hours were lost due to turnaround at accident and emergency departments taking more than 30 minutes, which equates to 41,000 12-hour ambulance shifts.** Transferring the care of a patient from an ambulance to an accident and emergency department is expected to take no longer than 15 minutes, with a further 15 minutes for ambulance crews to make their vehicle ready for the next call. Each failure to meet this standard results in a poor experience for the patient and a delay in an ambulance crew being available for a new emergency call. Since our previous report, the percentage of transfers meeting this expectation has decreased. In 2015-16, only 58% of hospital transfers met the 15-minute expectation and only 65% of ambulance crews were then ready for another call within 15 minutes, with wide variation across ambulance trusts and, more significantly, across individual hospitals (paragraphs 1.22 to 1.24).

10 **Ambulance trusts have made progress in delivering new models of care but barriers are hindering wider adoption.** Internal barriers include having enough paramedics to fully implement the new models, and external barriers include the availability of other local services to which patients can be directed or conveyed. In 2015-16, 10% of calls were resolved over the telephone and 38% of face-to-face incidents were resolved without the need to transport to hospital, compared with 5% and 34% respectively in 2011-12. Progress would be greater, however, if the barriers were removed. In 2015-16, treating more patients using new models avoided potential costs to ambulance trusts of around £74 million, and avoided the costs to hospitals associated with attendances at accident and emergency departments of around £63 million, compared with the costs of how these calls would have been handled in 2011-12 (paragraphs 2.2, 2.3, 3.4, 3.6 and 3.8).

11 **Ambulance trusts are struggling to meet response time targets although clinical outcomes for some patients are improving.** Performance against the response time targets is getting worse. In 2015-16, only one trust (West Midlands) met the three targets (**Figure 2**). Nationally, outcomes for patients have improved for five of the eight outcomes measured (for example, the percentage of cardiac arrest patients who had a return of spontaneous circulation on arrival at hospital following treatment from the ambulance service). However, outcomes performance cannot be compared across trusts because data are not collected consistently (paragraphs 2.7, 2.8 and 2.10).

12 **Important factors other than response times require attention when managing ambulance service performance.** The Department of Health introduced a range of indicators designed to encourage a broader, outcome-led performance regime in 2011. However, there is general consensus that commissioners, regulators and providers still place too much focus on meeting response times. The majority of patients currently coded as Red 2 do not derive clinical benefit from the arrival of an ambulance resource within 8 minutes. Despite this, the Red 2 target has led to a range of operational behaviours that undermine the efficiency of the ambulance service, such as dispatching resources before it has been determined what the problem is, and whether an ambulance is required; and dispatching multiple ambulance vehicles to the same patient and then standing down the vehicles least likely to arrive first. NHS England has established the Ambulance Response Programme, which aims to address some of these issues (paragraphs 3.4 and 3.5).

Figure 2
Ambulance trusts achieving response time targets

The number of trusts achieving the targets has fallen since 2012-13

Response time targets	2012-13	2013-14	2014-15	2015-16
Red 1 calls: an emergency response arriving at the scene within 8 minutes in 75% of cases	5	7	4	1
Red 2 calls: an emergency response arriving at the scene within 8 minutes in 75% of cases	9	6	0	1
Red 1 and 2 calls: where onward transport is required, a vehicle capable of conveying the patient arriving at the scene within 19 minutes in 95% of cases	8	8	4	1

Note

1 Data for 2012-13 are from June 2012 to March 2013.

Source: National Audit Office analysis of NHS England and NHS Digital data

13 The use of different operating frameworks across ambulance trusts is contributing to variations in performance. NHS England has put in place an urgent and emergency care strategy that aims to integrate all urgent and emergency care services and provide care closer to home. The extent to which ambulance trusts have taken up this strategy varies across trusts. Each trust has developed its own operating framework which is contributing to variations and inefficiencies in performance. Key operating framework variables include workforce mix, fleet mix and estate. For example, in 2015-16, the proportion of incidents where one or more vehicles were stood down after mobilisation varied from 4% to 46%; the cost per call (the total urgent and emergency care income divided by the number of calls received) varied from £139 to £272; and the proportion of calls handled over the phone varied from 5% to 15%. In addition, ambulance services are not commissioned consistently across England, with differences in how they are funded and what they are funded for. Many of the factors contributing to these variations are within the control of ambulance trusts or the wider health system (paragraphs 1.6, 1.15, 2.6, 3.2 to 3.6 and 3.12).

14 Ambulance trusts are working within an increasingly complex health system. The 10 ambulance trusts are finding it challenging to engage with the wider health sector due to the growing number of stakeholders that trusts are required to work with. The wider system does not always make good use of the ambulance services' experience or recognise the impact that changes to other local services have on ambulance services. NHS England has produced guidance to support the development of local Sustainability and Transformation Plans. These plans set out how local services will change and improve over the next five years, to meet rising demand within the resources available. However, it remains unclear how NHS England's aim for integrated urgent and emergency care systems will be achieved through these plans. Ambulance trusts are collaborating with each other and with the wider urgent and emergency care system to improve services and make efficiency savings, but collaboration is generally piecemeal. Collaboration between emergency services is taking place locally, but currently there is no national-level monitoring and evaluation of which initiatives could be successfully transferred to other locations is limited (paragraphs 3.11 to 3.15 and 3.18 to 3.20).

Conclusion on value for money

15 Ambulance services are finding it increasingly difficult to cope with rising demand for urgent and emergency services. Introducing new models of care has helped but there are signs of stress, including worsening performance against response time targets. We have also seen limited improvement since our last report with continuing variations in operational and financial performance. Ambulance services are facing significant challenges and it does not help that most are struggling to recruit the staff they need and then retain them.

16 Ambulance services are a vital part of the health service but much of their ability to work better depends on other parts of the health system. Until clinical commissioning groups see ambulance services as an integral part of that system it is difficult to see how they will become sustainable and secure consistent value for money across the country. Introducing a standard operating framework and consistent commissioning arrangements may help but our work raises serious questions about the place of ambulance services in the health system and their ability to operate effectively.

Recommendations

a **NHS England, NHS Improvement and ambulance trusts in England should work together to define the optimal operating framework for an ambulance trust, allowing some flexibility to tailor responses in urban and rural areas.** This should include identifying the optimal rate for new models of care. Once the framework is developed, NHS Improvement should require ambulance trusts to justify variations from it if their performance and management of costs fall below acceptable levels. Ambulance commissioners should take a consistent approach to commissioning ambulance services, based on the framework. As part of a standard operating framework, trusts should develop and report consistent metrics on efficiency, including staff utilisation.

b **In updating how ambulance trust performance is measured, NHS England and NHS Digital should consider how performance for all patients can be made transparent.** For example by:

- more closely defining key metrics, such as clinical outcomes and resolving calls over the phone, in order to improve comparisons and to enable these metrics to be used to improve services;
- publishing performance for Green calls as well as Red calls; and
- introducing a requirement for trusts to report and publish 'tail breaches' – incidents where an ambulance fails to reach a patient for a length of time well in excess of the target.

c **In order to tackle rising delays in transfers of patient care at hospital:**

- **NHS Improvement should publish transfer times for all ambulance trusts and hospitals.** These should include the number and proportion of incidents not meeting the 15-minute targets, and the total hours lost due to both hospital transfer and post-transfer preparation of ambulances.
- **NHS England and clinical commissioning groups should work together to adopt a nationally consistent approach to incentivising acute hospital trusts to reduce turnaround delays at hospitals.**

d **NHS England and NHS Improvement should ensure that clinical commissioning groups assess and understand what is preventing ambulance trusts from maximising new models of care** (such as availability of other local services to which patients can be directed or conveyed) and address barriers across their local area through contractual levers and planning guidance. Clinical commissioning groups should also ensure that engagement with ambulance services takes place on all changes to local health service provision so that any negative impact or conflicting demands can be assessed and mitigated.

e **NHS England should clarify how its national strategy, set out in the Urgent and Emergency Care Review, will be achieved through local Sustainability and Transformation Plans.**

Part One

Ambulance services

1.1 This part explains what the NHS ambulance service in England does, the environment in which it operates and the challenges it faces.

The ambulance service

1.2 The ambulance service provides life-saving care to some patients and is highly regarded by the public. In England, 10 regionally based ambulance trusts provide urgent and emergency healthcare, with separate arrangements for the Isle of Wight. Emergency care is for life-threatening illness or injury, while urgent care is for less serious incidents. Some ambulance trusts also provide non-urgent patient transport, NHS 111 (the NHS non-emergency number) and out-of-hours GP services for part, or all, of their region (see Appendix Four for details).

1.3 Since April 2011, all ambulance trusts in England have been measured against 11 ambulance quality indicators (see Appendix Five for details) with seven ambulance systems indicators, which consider the way trusts manage responses to emergency calls, and four clinical outcome indicators. Since July 2012, ambulance responses have been split into the following categories:

- Red calls where the patient's condition is considered to be life-threatening. Red 1 calls are the most time-critical, and cover cardiac arrest patients who are not breathing and do not have a pulse, and other severe conditions such as airway obstruction. Red 2 calls are serious, but less immediately time-critical, and cover conditions such as stroke and fits.
- Green calls where the patient's condition is considered not to be life-threatening. Ambulance trusts split these calls into different categories depending on the seriousness of the condition.

1.4 Until recently for Red calls, all ambulance trusts had a target of an emergency response arriving at the scene within 8 minutes in 75% of cases. If onward transport is required, a vehicle capable of conveying the patient should arrive at the scene within 19 minutes in 95% of cases. In practice ambulance trusts record the arrival of a fast response car as a vehicle capable of conveying the patient, and therefore use cars to stop the clock even though these rarely convey a patient in practice. For Red 1 calls, the clock starts when the call is connected to an ambulance trust's switchboard. For Red 2 calls, the clock starts on the earliest of 60 seconds elapsing since call connect, an ambulance being dispatched, or the call handler identifying the chief complaint of the patient. In 2016-17, a clinical re-coding trial, involving the use of different performance standards, was initiated in three trusts, as part of the Ambulance Response Programme (see paragraph 3.5). Locally agreed targets are in place for Green calls. For comparison, Appendix Six sets out the response time targets in Northern Ireland, Scotland and Wales.

1.5 Since we last reported on the ambulance service, responsibility for commissioning these services has transferred from primary care trusts to clinical commissioning groups. Services are typically commissioned by a 'lead' clinical commissioning group on behalf of the other clinical commissioning groups whose populations are served by that ambulance trust. These commissioners are responsible for agreeing strategic plans, priorities and funding across all of their constituent clinical commissioning groups; 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.

1.6 The ambulance service has a pivotal role to play in the performance of the entire urgent and emergency care system, as a conduit to other services and helping patients access the facilities they need close to their home. In 2013, NHS England initiated the Urgent and Emergency Care Review, which aims to address concerns that accident and emergency departments, the services that support and sit behind these departments and ambulance services are under intense, growing and unsustainable pressure. It has set out NHS England's ambition to integrate urgent and emergency care systems and provide care as 'close to home' as possible, minimising disruption and inconvenience for patients, carers and families.

1.7 For ambulances, this means utilising new models of care to reduce the number of patients going to hospital. The new models of care are: resolving calls over the phone by providing advice to callers (known as 'hear and treat'); treating patients at the scene (known as 'see and treat'); and taking patients to non-hospital destinations.[2] NHS England noted that fewer than 5% of patients receiving urgent or emergency care had a life-threatening illness or injury, so a significant proportion of patients treated by ambulance crews could potentially be treated without taking them to an accident and emergency department. Although limited research has been undertaken into the new models of care, available evidence has shown that treatment over the phone, or by ambulance staff outside a hospital setting, is generally safe and well received by patients.[3]

2 Non-hospital destinations include all other destinations except type 1 and 2 accident and emergency departments.'
3 J Turner et al, 'What evidence is there on the effectiveness of different models of delivering urgent care? A rapid review', *Health Services and Delivery Research*, Volume 3, Issue 43, page 29, November 2015.

Challenges

1.8 Ambulance trusts face a number of challenges in delivering urgent and emergency care, including demand, funding and resourcing issues and delayed transfers of care at hospitals.

Demand

1.9 Demand for ambulance services results from three sources:

- Emergency calls to 999. Ambulance trusts have no control over the number of calls they receive, but once received they have a statutory duty to resolve them.
- Calls from other healthcare professionals, such as doctors and nurses. Ambulance trusts are required to take patients to hospital when another healthcare professional identifies the need as urgent or an emergency.
- Electronic transfers from NHS 111 services that require an ambulance response. NHS 111 services became available nationally in February 2014.

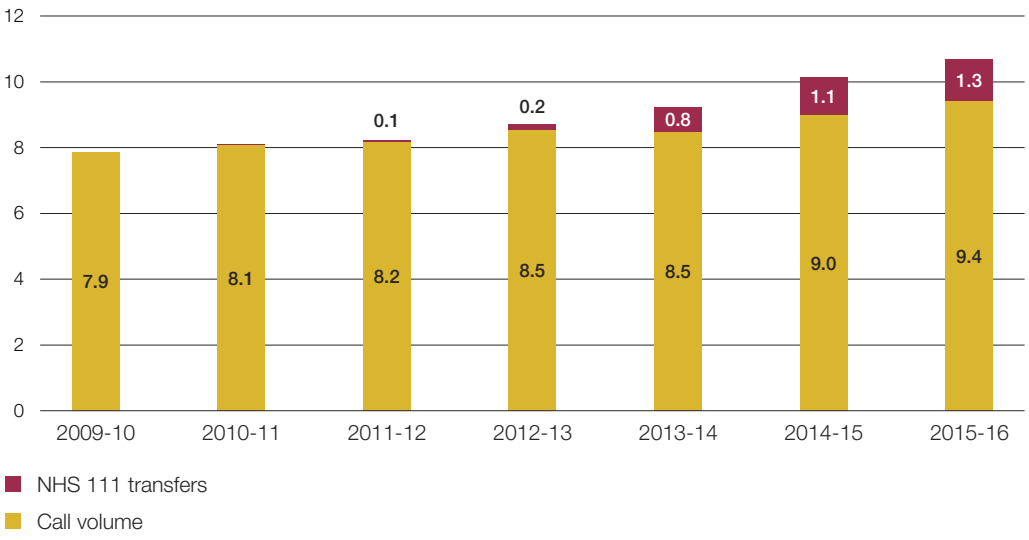
1.10 **Figure 3** shows that between 2009-10 and 2015-16, demand for ambulance services (calls presented to ambulance switchboards and NHS 111 transfers) increased from 7.9 million to 10.7 million, an average year-on-year increase of 5.2%. This represents an increase from 151 to 195 calls or transfers per 1,000 people. Over the last two years, the largest increase in demand for ambulance services has come from NHS 111 transfers, reflecting the fact that demand for NHS 111 services is rising. The proportion of NHS 111 calls that result in a transfer to the ambulance service has remained stable, at around 11%. In addition to the increase in overall demand, there has also been a rise in the proportion of Red calls, requiring a faster response, from 41% to 51% between 2011-12 and 2015-16.

1.11 Increasing demand for ambulance services, and wider urgent and emergency care, is being experienced in many countries, but research into what is driving this rise, and what can be done to control it, is limited. Contributing factors may include: the increasing number of elderly patients with multiple conditions; an increasing number of alcohol- and mental health-driven issues; the availability of primary care services in the community and how patients seek help.

Figure 3

Call volumes and NHS 111 transfers, 2009-10 to 2015-16

Demand for ambulance services has been growing by an average 5.2% a year since 2009-10



Notes

1 NHS 111 services became available nationally in February 2014.

2 Includes calls and NHS 111 transfers passed to the Isle of Wight NHS Trust.

3 Call volume data sourced from NHS Digital (2009-10 and 2010-11) and NHS England (2011-12 onwards).

4 In 2010-11 there were around 14,000 NHS 111 transfers.

Source: National Audit Office analysis of NHS England and NHS Digital data

Funding

1.12 In 2015-16, spending on NHS ambulance trusts was £2.2 billion, of which £1.78 billion was for urgent and emergency activity. The remainder covered spend on other services, such as NHS 111. Between 2011-12 and 2015-16, funding for ambulance trusts' urgent and emergency activity increased by 16%. Over this period, total ambulance activity (999 calls and NHS 111 transfers) rose by 30% and incidents attended rose by 9%. Commissioners and ambulance trusts are expected to agree their plans for 2017-18 and 2018-19 by the end of 2016. Commissioners told us that, given current financial challenges in the wider health service, settlements are likely to be more challenging than in previous years.

1.13 In December 2016, in recognition of the increasing responsibilities of modern paramedics, the Department of Health (the Department), NHS Employers and ambulance unions agreed that paramedics will be re-banded nationally and where appropriate move up the pay scale from band 5 to band 6. Initial funding will be agreed by the Department, NHS England and NHS Improvement. Funding in future years will be linked to agreements between ambulance trusts and their commissioners.

1.14 In 2015-16, the NHS ambulance sector in England showed an operating deficit of £12 million (0.6% of the total ambulance budget). Four ambulance trusts showed a deficit for the year, although the majority of the deficit was accounted for by the East Midlands Ambulance Service.[4] NHS Improvement began a review of ambulance trust sustainability in June 2016.

1.15 Ambulance services are not commissioned consistently across England. Key differences include:

- how trusts are funded. Contracts are based on: a price per incident, regardless of how the incident is resolved; a price per call, depending on whether the call is resolved over the phone, at the scene, or requires transportation; or a fixed annual price regardless of activity; and
- what services are included in the contract. All contracts include standard urgent and emergency services. Additional services, such as hospital–ambulance liaison officers to facilitate the transfer of patients at hospital, may be included in the standard contract or considered 'add-ons'.

1.16 This lack of consistency contributes to variation in urgent and emergency income per head of population that trusts receive (**Figure 4**), and means that commissioners find it difficult to benchmark performance in terms of cost-effectiveness across trusts.

Resource issues

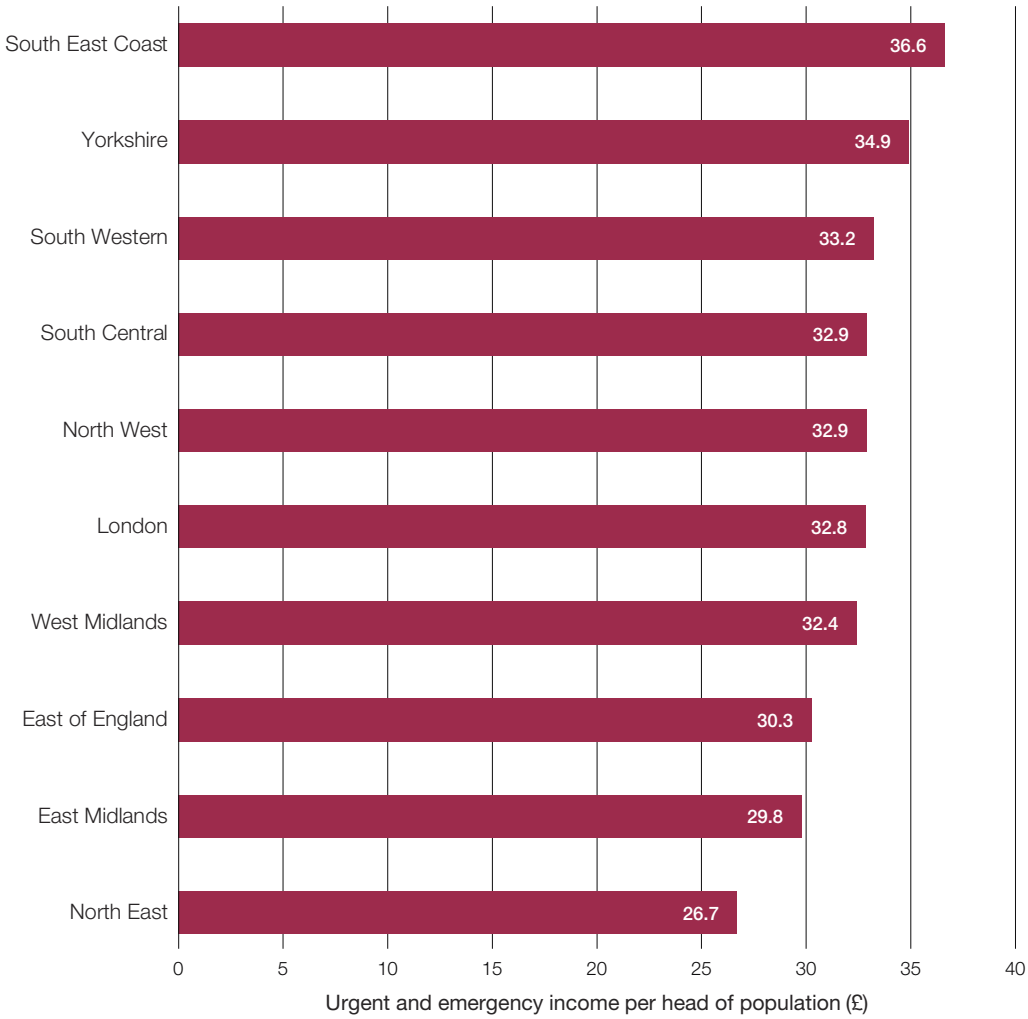
1.17 The number of staff (full-time equivalent) working for the ambulance service in England has increased from 30,400 in 2010-11 to 32,400 in 2015-16 (**Figure 5** on page 18), an average year-on-year increase of 1.6%. Despite these increases, most ambulance trusts are carrying a large number of vacancies. In April 2015, the Migration Advisory Committee, a non-departmental public body that advises the government on migration issues, added paramedics to the relevant shortage occupation list, stating it had been told that the paramedic vacancy rate in England was 10% (1,250 vacancies).[5]

4 The four trusts with a deficit were East Midlands, London, North East and South Central.
5 Migration Advisory Committee, *Partial review of the Shortage Occupation Lists for the UK and for Scotland*, February 2015.

Figure 4

Urgent and emergency income per head of population by NHS ambulance trust, 2015-16

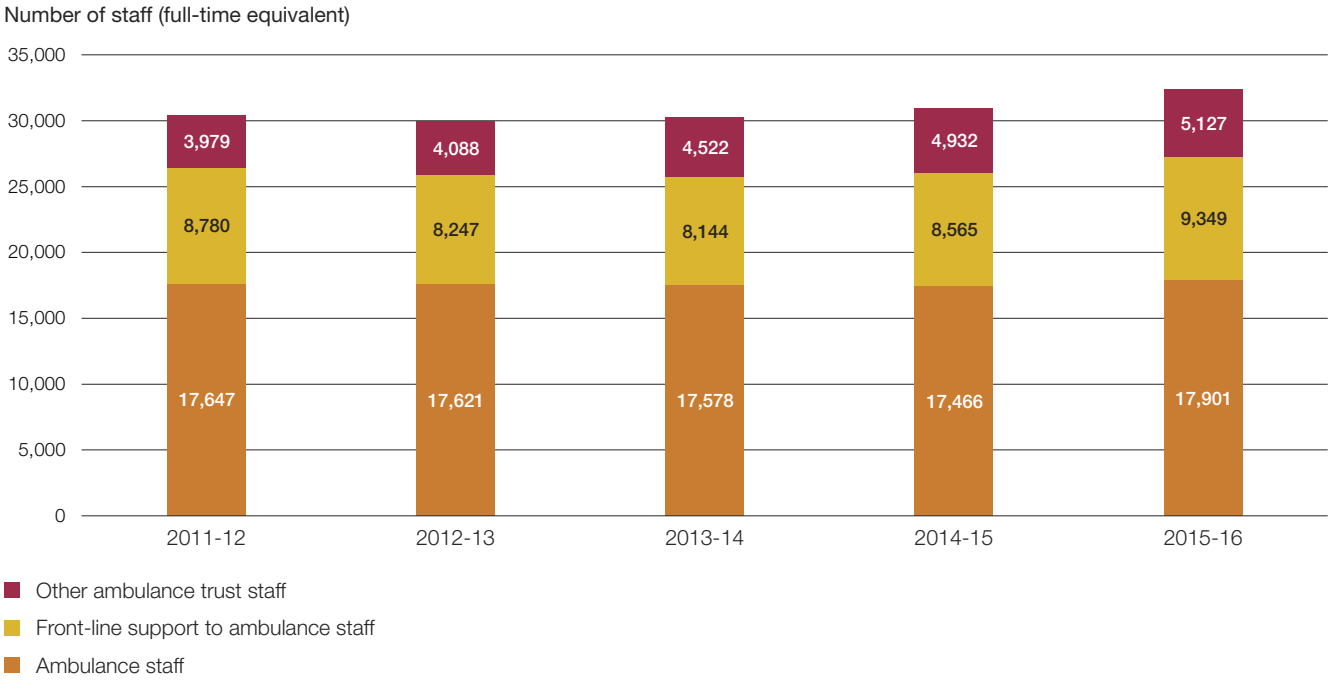
In 2015-16, income per head of population varied by almost £10 across the ambulance trusts



Source: National Audit Office analysis of Office for National Statistics and ambulance trusts' data

Figure 5
Staff numbers, 2011-12 to 2015-16

Ambulance staff numbers continue to increase



Notes

1 Monthly figures have been averaged to give annual figures, and include ambulance staff in the Isle of Wight.

2 Ambulance staff includes managers, emergency care practitioners, paramedics and ambulance technicians.

3 Front-line support to ambulance staff includes support workers, health care assistants, trainee ambulance technicians and ambulance personnel.

4 Other ambulance trust staff includes clerical, administrative and estates staff.

Source: National Audit Office analysis of NHS Digital data

1.18 Trusts are facing challenges retaining staff, with most reporting increased turnover rates. For example, North West Ambulance Service's turnover rate increased from 4.7% to 9.6% between 2011-12 and 2015-16. Staff at the College of Paramedics told us that an increasing number of paramedics are leaving the ambulance service to work for other NHS employers, such as acute hospitals and general practices, although there are currently no data on exact numbers. The reasons people cite for leaving are varied and include pay and reward, and the stressful nature of the job. Ambulance staff, compared with other NHS staff, are more likely to:

- experience physical violence, and bullying, harassment or abuse from patients and other members of staff;
- work extra hours and feel pressure to work when unwell; and
- experience work-related stress.

1.19 Health Education England has set up a programme to train more paramedics and to upskill current ambulance staff and estimates that the NHS will need to recruit 1,800 to 1,850 new paramedic trainees each year between 2016 and 2020 to meet future workforce needs. It has increased the number of new trainees from 700 to nearly 1,800 between 2013 and 2015. Part of this increase is to ensure that there is no shortage of paramedics as the two-year paramedic qualification moves to a three-year bachelor degree, but part of it is to rectify historic under-recruitment of paramedics.

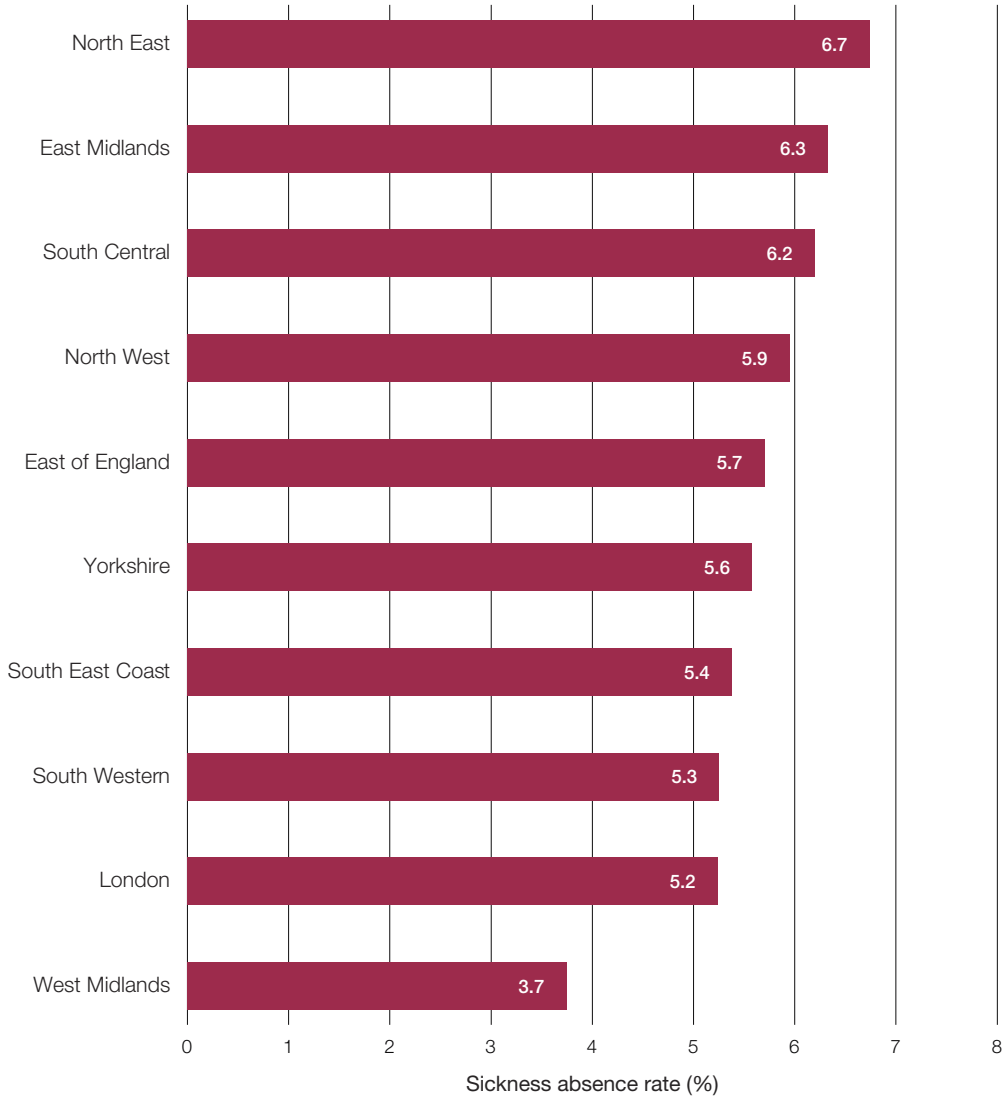
1.20 Some ambulance trusts and other stakeholders are concerned that planned recruitment may still be insufficient if staff turnover continues to grow and other parts of the NHS recruit greater numbers of paramedics. Ambulance trusts are also concerned that additional training places will need to be partially funded by ambulance trusts, and that new trainees will be concentrated in certain parts of the country. Health Education England has assumed the turnover rate will continue at around 9% each year until 2020, compared with historic levels of 4% to 5%. Some trusts are recruiting paramedics from overseas to meet staffing shortfalls over the medium term. Although this process has recruited some valuable staff, trusts noted that there can be challenges in orientating overseas staff to expectations in an English trust, that international recruitment is expensive and that overseas staff may move on or return home after a few years.

1.21 Sickness absence rates in the ambulance service are also higher than in the NHS as a whole. Some of this is explained by the fact that ambulance work by its nature carries an increased risk of musculoskeletal injury and violence. Since we last reported, the average sickness absence rate for ambulance staff shows a small improvement from 5.7% in 2009-10 to 5.5% in 2015-16 (compared with 4.2% for all NHS clinical staff). However, there is wide variation across trusts (**Figure 6** overleaf). If all trusts achieved the sickness absence rate of the best trust, this would create an additional 240,200 days of staff availability (953 full-time equivalents).

Figure 6

Staff sickness absence rate by NHS ambulance trust, 2015-16

In 2015-16, there was substantial variation in sickness rates across the ambulance trusts



Note

1 Includes all ambulance trust staff.

Source: National Audit Office analysis of NHS Digital data

Delays in transferring care of patients to hospitals

1.22 Transferring a patient from an ambulance to an emergency department is expected to take no longer than 15 minutes after the ambulance arrives at the hospital. After the patient has been handed over, there is also an expectation that the ambulance crew will make their vehicle ready for another call within 15 minutes. Each failure to meet these standards means:

- a delay and poor experience for the patient waiting to be received; and
- a delay in an ambulance crew being available for a new emergency call. This means patients, including those with a life-threatening condition, waiting longer without any face-to-face medical support. This poses a potential safety risk and causes emotional distress.

1.23 Our previous report highlighted that, in 2010-11, about 80% of patient transfers met the 15-minute expectation. In 2015-16, only 58% of transfers met this expectation, with wide variation between ambulance trust regions (**Figure 7** overleaf) and, more significantly, across individual hospitals. For example, the percentage of transfers meeting the expectation ranged from 21% to 67% across hospitals in London. In addition, only 65% of ambulance crews were ready for another call within 15 minutes, with wide variation across ambulance trusts.

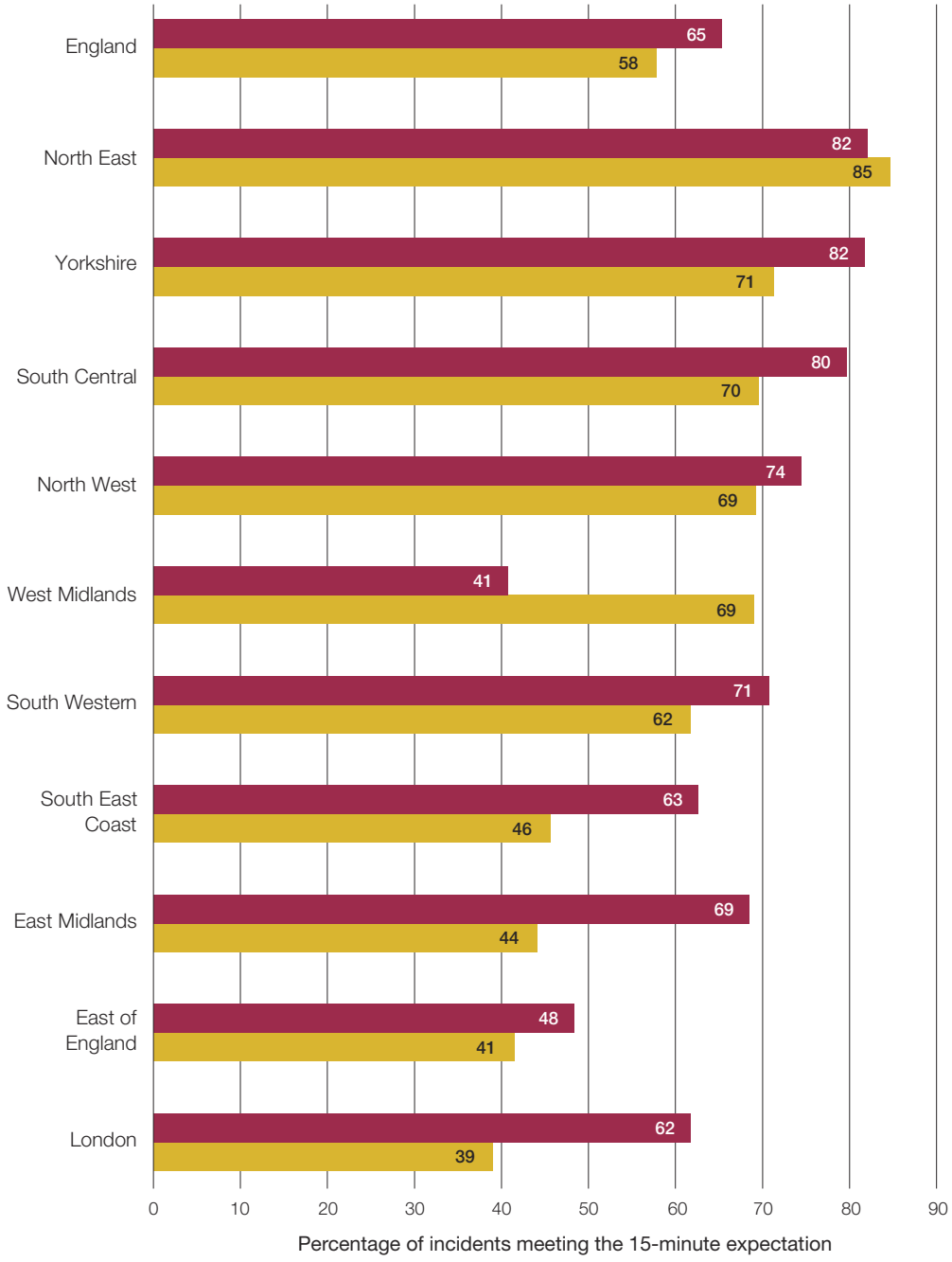
1.24 The Association of Ambulance Chief Executives calculated that, in 2015-16, almost half a million hours were lost by ambulance crews taking more than the expected 30 minutes to transfer care of a patient and make their vehicle ready for the next call. This equates to around 41,000 12-hour ambulance shifts per year, or 113 per day. This represents a significant loss of resource to the 10 ambulance trusts, which collectively operate 3,130 double-crewed ambulances. In 2015-16, there were almost 22,000 delays of over two hours. The data do not identify exactly how many lost hours can be attributed to hospital transfers of care and how many to post-transfer preparation, but average transfer of care times and volume of delayed incidents indicate that the majority relate to delayed transfers of care at the hospital.

1.25 Most stakeholders believe that the increasing number of delayed transfers of patients is symptomatic of other pressures and behaviours in the wider system, resulting from rising demand for health services. Local initiatives that have helped to reduce transfer delays include hospital–ambulance liaison officers and asking one ambulance crew to take charge of patients brought in by other crews until they can be transferred to hospital care. However, these initiatives do not always work. Ambulance trusts told us that hospitals that perform well in meeting the patient transfer standard generally displayed strong leadership and focused on having a good ‘flow’ of patients through the hospital.

Figure 7

Performance in transferring patients upon arrival at hospital and making the ambulance ready for another call by NHS ambulance trust, 2015-16

In 2015-16, there was wide variation in both hospital performance in taking responsibility for the patient, and ambulance performance in preparing the vehicle for the next call



Source: National Audit Office analysis of ambulance trusts' data

1.26 Following our previous report, the Committee of Public Accounts recommended that commissioners take a consistent approach to penalising hospitals that do not adhere to the guidance of 15-minute transfers.[6] In 2015-16, the NHS national contract between providers and commissioners made provision to levy fines against hospital trusts that delayed the transfer of patients from ambulances, with a fine of £200 per transfer over 30 minutes and £1,000 per transfer over 60 minutes. However, in January 2016, NHS England and NHS Improvement introduced a revised set of financial arrangements that meant the fining regime was suspended for most trusts from January 2016. They recently announced these arrangements will remain in place until April 2019. It is not clear whether performance has suffered in 2016-17 as a consequence of this suspension. The Committee also recommended that the Department should develop a quality indicator on hospital transfer times. This metric has not been developed, although an indicator measuring the time to initial assessment for patients arriving by ambulance was developed.

6 HC Committee of Public Accounts, *Transforming NHS ambulance services*, Forty-sixth Report of Session 2010–2012, HC 1353, September 2011.

Part Two

Ambulance service performance

2.1 This part examines ambulance service performance in implementing new models of care and against ambulance quality indicators and other performance measures.

Implementation of new models of care

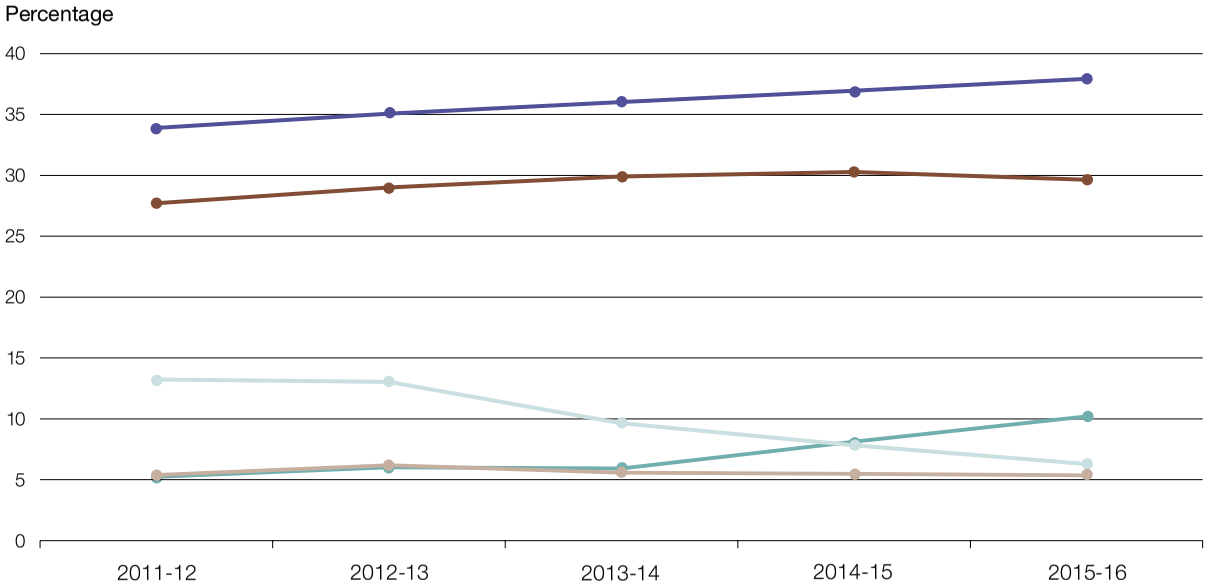
2.2 Ambulance trusts can help to manage the demand for urgent and emergency services and provide care as 'close to home' as possible by utilising new models of care. **Figure 8** shows that between 2011-12 and 2015-16:

- the proportion of calls resolved over the phone increased from 5.2% to 10.2%;
- the 're-contact rate' for calls resolved over the phone, in which the caller calls back for further assistance within 24 hours, decreased from 13.3% to 6.3%, indicating that performance in resolving calls over the phone has improved;
- the proportion of calls resolved at the scene increased from 27.7% to 29.6% (the number of incidents resolved at the scene increased from 1.8 million to just under 2 million);
- the re-contact rate for those treated at the scene has remained stable at about 5.5%; and
- the proportion of incidents resolved through treatment at the scene or through conveyance to a non-hospital location increased from 33.9% to 37.9% (the actual number of incidents resolved this way has increased from 2.0 million to 2.5 million).

Figure 8

Implementation of new models of care for ambulance trusts, 2011-12 to 2015-16

Take-up for new models of care has improved and a decreasing re-contact rate indicates performance in resolving calls over the phone is improving



	2011-12	2012-13	2013-14	2014-15	2015-16
Proportion of incidents resolved at the scene or by conveying the patient to a non-hospital destination (includes NHS 111 calls)	34	35	36	37	38
Proportion of calls resolved over the phone (excludes NHS 111 calls)	5	6	6	8	10
Proportion of incidents resolved at the scene (excludes NHS 111 calls)	28	29	30	30	30
Re-contact after call resolved over the phone	13	13	10	8	6
Re-contact after incident resolved at the scene	5	6	6	5	5

Notes

1 The proportion of calls resolved over the phone was calculated by dividing the number of calls resolved over the phone by the number of calls received that required a telephone or face-to-face response, excluding NHS 111 calls.

2 The proportion of calls resolved at the scene was calculated by dividing the number of calls resolved at the scene by the number of calls that required a telephone or face-to-face response, excluding NHS 111 calls.

3 The proportion of incidents resolved at the scene or by conveying the patient to a non-hospital destination was calculated by dividing the number of incidents resolved at the scene or by conveyance to a non-hospital destination by the number of calls requiring a face-to-face response, including NHS 111 calls.

Source: National Audit Office analysis of NHS Digital and NHS England data

2.3 Through these improvements, during 2015-16, ambulance trusts avoided more than 458,000 accident and emergency attendances (11% of all journeys to accident and emergency departments), with associated costs of £63 million, that would have occurred under arrangements that were in place in 2011-12. Further savings from reduced admissions into hospital are likely but not quantified. Resolving more calls over the phone and treating more patients at the scene avoided potential costs of around £74 million for ambulance trusts in 2015-16, compared with 2011-12 (**Figure 9**).[7] However, using these new models of care is likely to have incurred additional costs for primary and community care services with increased referral rates to them from ambulance services.

Figure 9

Costs to the ambulance service avoided by new models of care, 2015-16

Potential costs of around £74 million were avoided by resolving more calls over the phone and treating more patients at the scene in 2015-16 compared with 2011-12

Model of care	Average unit cost in 2015-16	Number of calls/ incidents resolved in 2015-16 if proportion of calls/incidents resolved this way had remained the same since 2011-12	Actual number of calls/ incidents resolved this way in 2015-16	Estimated cost avoided compared to conveyance
Hear and treat	£34	347,000	677,000	£66.7 million
See and treat	£181	1,837,000	1,964,000	£7.1 million

Notes

1 The average unit costs were taken from 2015-16 reference cost information for England.

2 The estimated cost avoided was calculated by identifying the number of additional calls or incidents resolved through each new model of care in 2015-16 compared with 2011-12 and multiplying these by the cost saved by using the new model of care compared with conveying the patient. This was done by calculating how many calls/incidents would have been resolved through 'hear and treat' or 'see and treat' in 2015-16 if the proportion of calls/incidents resolved this way had remained the same since 2011-12, and then subtracting this figure from the number of calls/incidents actually resolved through 'hear and treat' or 'see and treat' in 2015-16. The unit cost saved was calculated by subtracting the unit cost of the new model of care from the unit cost of conveyance. The average unit cost of a conveyance is £236, and is not divided into conveyance to hospital and conveyance to an alternative destination.

3 Numbers have been rounded.

4 Includes activity resolved by Isle of Wight NHS Trust.

Source: National Audit Office analysis of NHS Digital, NHS England and Department of Health data

7 Our previous report on ambulance services used data from 2009-10, but due to changes in the way new models of care are counted these data are not comparable with the data between 2011-12 and 2015-16.

2.4 Despite more people having their calls resolved over the phone or being treated at the scene, conveyance of patients still accounts for 73% of ambulance service expenditure when responding to a call, with treatment at the scene accounting for 25% and resolving calls over the phone accounting for 2%. Although the percentage of incidents resulting in the patient being taken to an accident and emergency department has decreased, increasing demand means that the absolute numbers of patients taken has increased from 4.0 million to 4.1 million between 2011-12 and 2015-16.

2.5 The proportion of patients admitted to hospital after arriving at an accident and emergency department by ambulance has increased (from 48% in 2007-08 to 52% in 2014-15). This indicates that ambulances are increasingly taking the most appropriate patients, with the most serious conditions, to hospital. It is worth noting that other factors can also contribute to admission rates, such as the time of day patients arrive at hospital.

2.6 There are substantial variations in the extent to which trusts have implemented the new models of care, and in re-contact rates between trusts (**Figure 10** on page 28 and **Figure 11** on page 29). In addition, the re-contact rate for incidents treated at the scene increased in four trusts between 2011-12 and 2015-16.[8] Some trusts expressed concern that data for calls resolved over the phone are not collected consistently across trusts.

Ambulance quality indicators

Response times

2.7 National performance against response time targets is getting worse (**Figure 12** on page 30). In October 2016, an emergency response arrived at the scene within 8 minutes in 67.3% of cases for Red 1 calls and 62.9% of cases for Red 2 calls. For those calls where onward transport was required, a vehicle capable of conveying the patient arrived at the scene within 19 minutes in 90.4% of cases. Nationally, none of these targets has been met since May 2015. There are a number of factors contributing to this worsening performance, including rising demand, increasing delays at hospitals and staff shortages (see Part One).

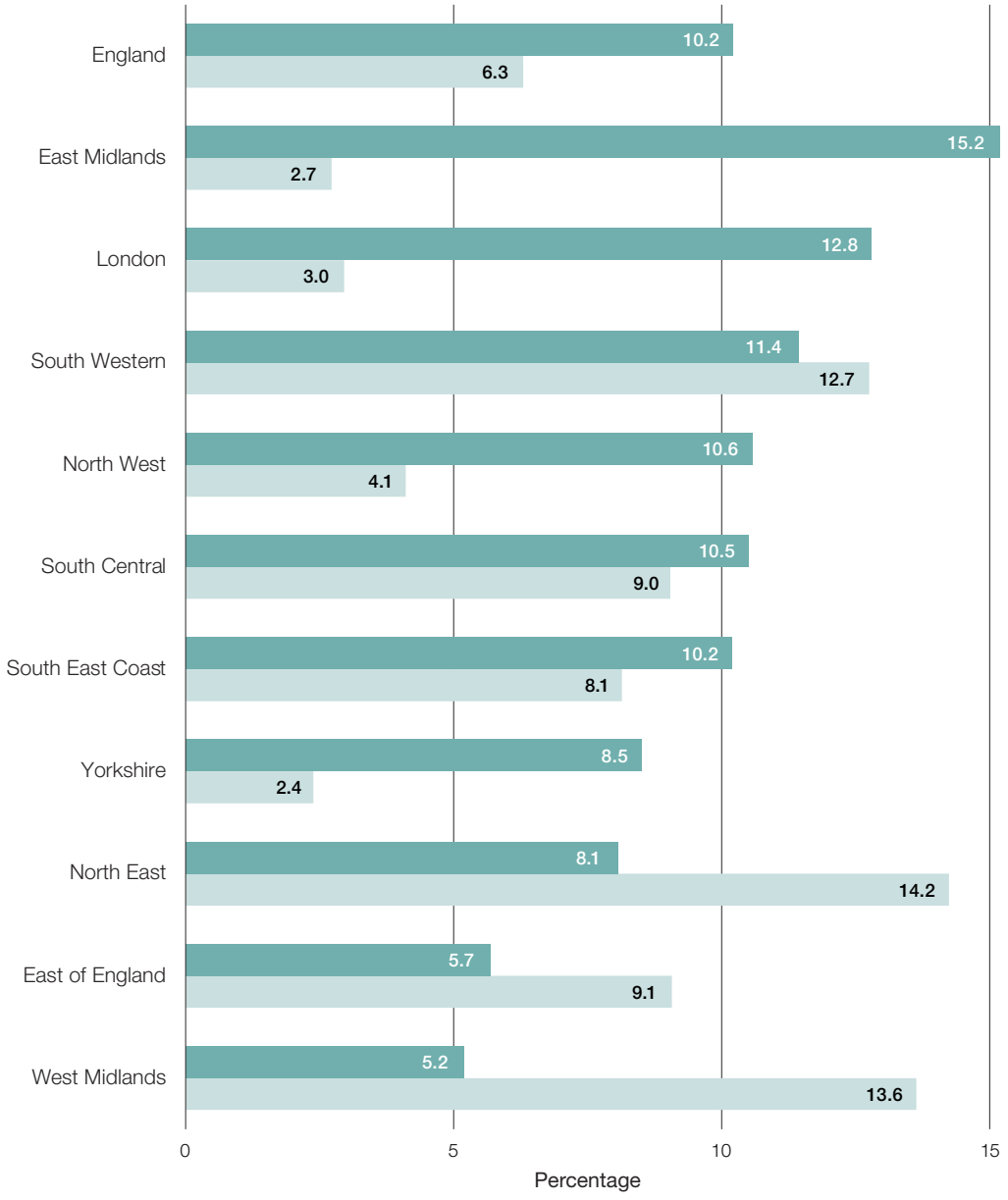
2.8 In 2015-16, only one trust, West Midlands, met all three response time targets (**Figure 13** on page 31). However, direct comparison between trusts for Red 2 and 19-minute performance is not possible because some trusts have been piloting an approach allowing additional time for the assessment of all calls except Red 1 999 calls.[9]

8 East of England, London, South Western and West Midlands.
9 London and South Western started the pilot scheme in February 2015 and South Central, North East, Yorkshire and West Midlands joined the pilot in October 2015.

Figure 10

Calls resolved over the phone by NHS ambulance trust, 2015-16

In 2015-16, there was substantial variation between trusts in the proportion of calls resolved over the phone, and in the re-contact rate of patients whose calls were resolved over the phone



Note

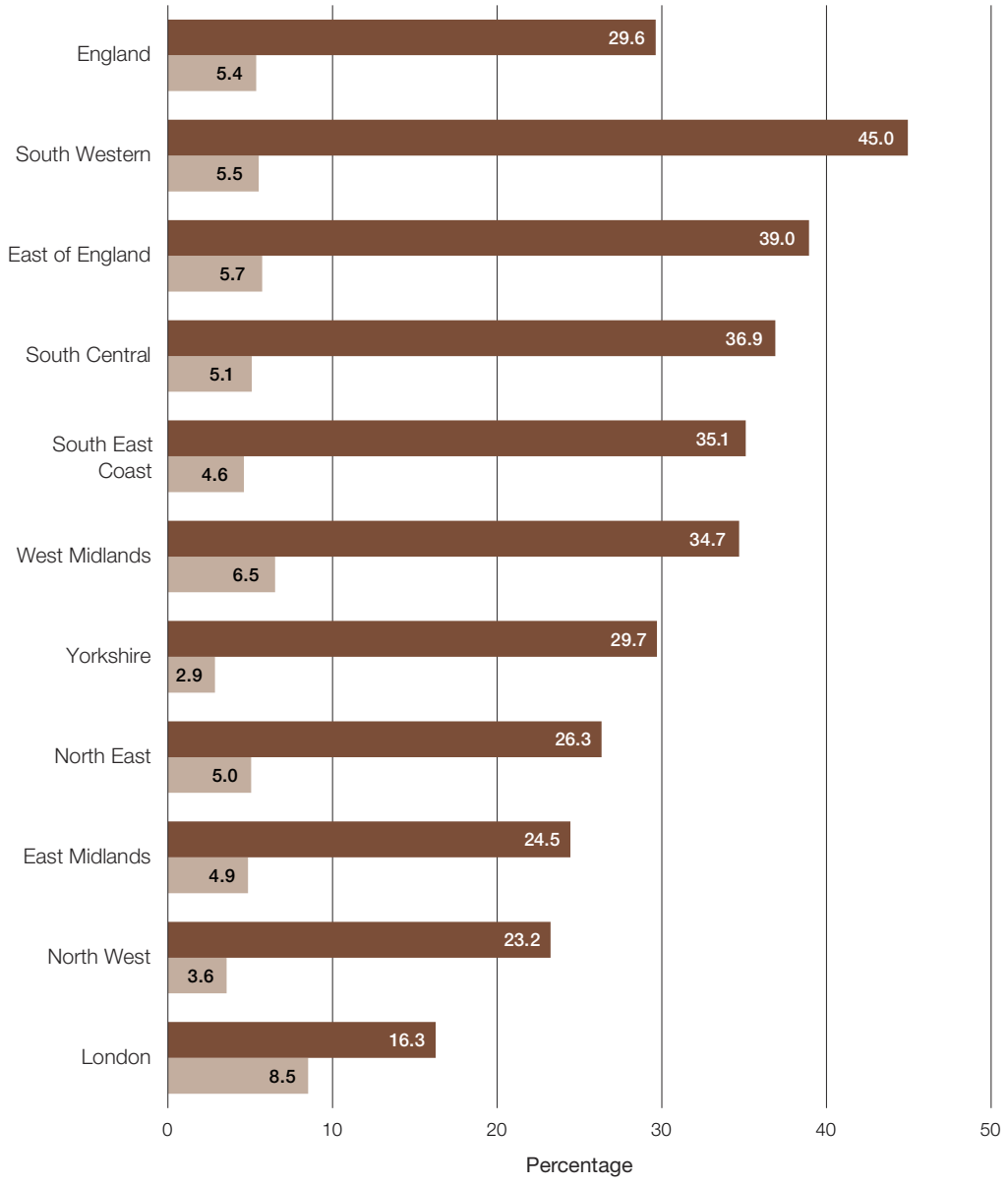
1 Data for calls resolved over the phone exclude transfers from NHS 111.

Source: National Audit Office analysis of NHS England and NHS Digital data

Figure 11

Incidents resolved by treating at the scene by NHS ambulance trust, 2015-16

In 2015-16, there was substantial variation between trusts in the proportion of incidents resolved at the scene, and in the re-contact rate of patients treated at the scene



Note

1 Data for incidents resolved at the scene exclude transfers from NHS 111.

Source: National Audit Office analysis of NHS England and NHS Digital data

Figure 12

National performance against response time target by month, June 2012 to October 2016

Ambulance trusts are struggling to meet response time targets throughout the year

Note

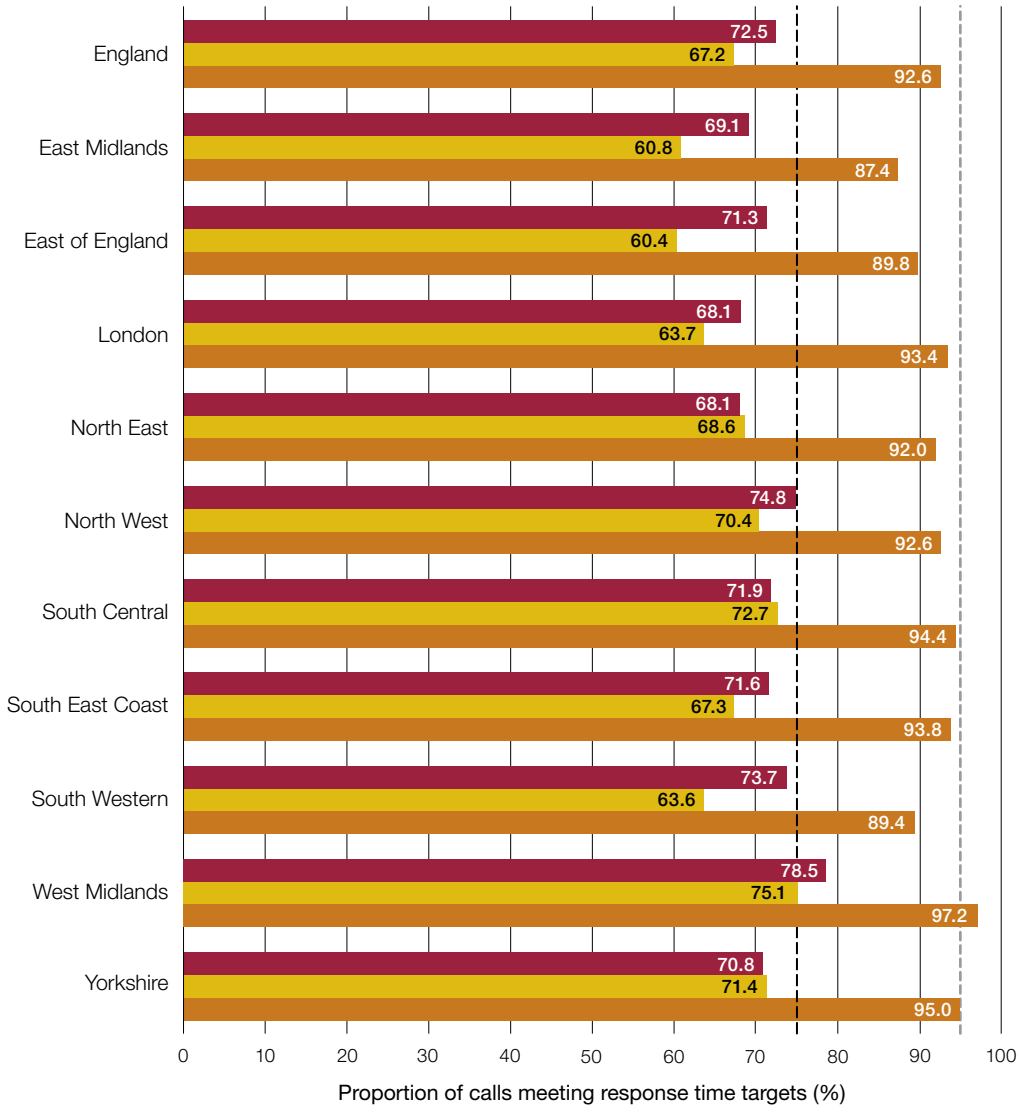
1 Due to the introduction of a clinical coding pilot, data for South Western Ambulance Service, Yorkshire Ambulance Service and West Midlands Ambulance Service are only available up to and including 18 April 2016, 20 April 2016 and 7 June 2016 respectively.

Source: National Audit Office analysis of NHS England data

Figure 13

Performance against response time targets by NHS ambulance trust, 2015-16

Just one ambulance trust met all three targets in 2015-16



Notes

1 Direct comparison between trusts for Red 2 and 19-minute performance is not possible because some trusts have been piloting an approach allowing additional time for the assessment of all calls except Red 1 999 calls.

2 Numbers have been rounded. Yorkshire Ambulance Service fell just short of meeting the 19 minute target.

Source: NHS England

2.9 Green calls, such as abdominal pain or minor wounds, where the patient's condition is considered not to be life-threatening but requires an assessment by an ambulance clinician or transport to hospital, account for around half of all 999 calls. Ambulance trusts split these calls into up to four categories depending on their seriousness. Appendix Seven shows locally agreed Green calls performance targets and actual performance in 2015-16. Across the 10 trusts, just 11 of the 33 targets were met. Some stakeholders expressed concern that the lack of national focus on Green calls was contributing to underperformance in some trusts.

Clinical indicators

2.10 The ambulance quality indicators include four clinical outcome indicators covering three conditions: cardiac arrest, heart attack and stroke. Outcomes are measured in two ways for each of these indicators, but there are no performance targets for these outcomes. Nationally, between 2011-12 and 2015-16, performance improved for five measures, deteriorated for two measures and there was no clear trend for one measure (**Figure 14**). It is not possible to compare performance between trusts because of concerns that incidents are not recorded consistently by ambulance trusts and hospitals across the country. No trust has shown improvement across more than five outcome measures.

2.11 The key challenge to more reliable clinical outcome indicators is tracking individual patients after their care is transferred to the hospital. This is not yet possible on a large scale, although small-scale pilot studies are being run in some parts of the country. Ambulance trusts use other clinical outcome indicators, such as care bundles for conditions such as asthma, trauma and febrile convulsion, but data for these indicators are not published as part of a national data set and understanding of performance is limited by infrequent data collection. NHS England is currently developing a new set of performance standards based on clinical outcomes that benefit patients (paragraph 3.5).

Other ambulance quality indicators

2.12 Performance answering 999 calls has improved. Between 2011-12 and 2015-16, the percentage of 999 calls abandoned before they were answered reduced from 1.2% to 0.6%, and the variation in performance across trusts reduced from 2.9 percentage points to 0.9 percentage points. The time taken to answer calls also improved over this period. In 2015-16, half of all emergency and urgent calls were answered in three seconds or less. However, a small proportion of calls took longer to answer, and the waiting time for the slowest 1% and 5% of calls answered varies significantly across trusts (**Figure 15** on page 34).

Figure 14

National performance against clinical outcome indicators, 2011-12 to 2015-16

Performance is variable across trusts and across clinical outcome indicators

Condition	Indicator	Patients	Performance between 2011-12 and 2015-16					
			National		Number of trusts			
Cardiac arrest	Percentage of patients who had return of spontaneous circulation on arrival at hospital	All	●	23% to 28%	● 6	● 4	● 0	
		Utstein group (where the cardiac arrest had an initially shockable rhythm and was witnessed by a bystander)	●	43% to 50%	● 7	● 3	● 0	
Cardiac arrest	Percentage of patients who had resuscitation by ambulance service following a cardiac arrest who were discharged from hospital alive	All	●	7% to 8%	● 2	● 8	● 0	
		Utstein group (where the cardiac arrest had an initially shockable rhythm and was witnessed by a bystander)	●	22% to 27%	● 6	● 4	● 0	
Heart attack	Percentage of patients who received primary angioplasty within 2.5 hours of call connecting to ambulance service	Acute ST-elevation myocardial infarction	●	90% to 87%	● 1	● 6	● 3	
	Percentage of patients who received an appropriate care bundle	Acute ST-elevation myocardial infarction	●	74% to 79%	● 8	● 1	● 1	
Stroke	Percentage of patients potentially eligible for stroke thrombolysis arriving at hyperacute stroke unit within one hour	Suspected stroke based on face-arm-speech test	●	65% to 57%	● 0	● 4	● 6	
	Percentage of patients assessed face-to-face who received an appropriate care bundle	Suspected stroke based on face-arm-speech test	●	94% to 98%	● 5	● 5	● 0	

● An improvement in performance

● No clear trend in performance

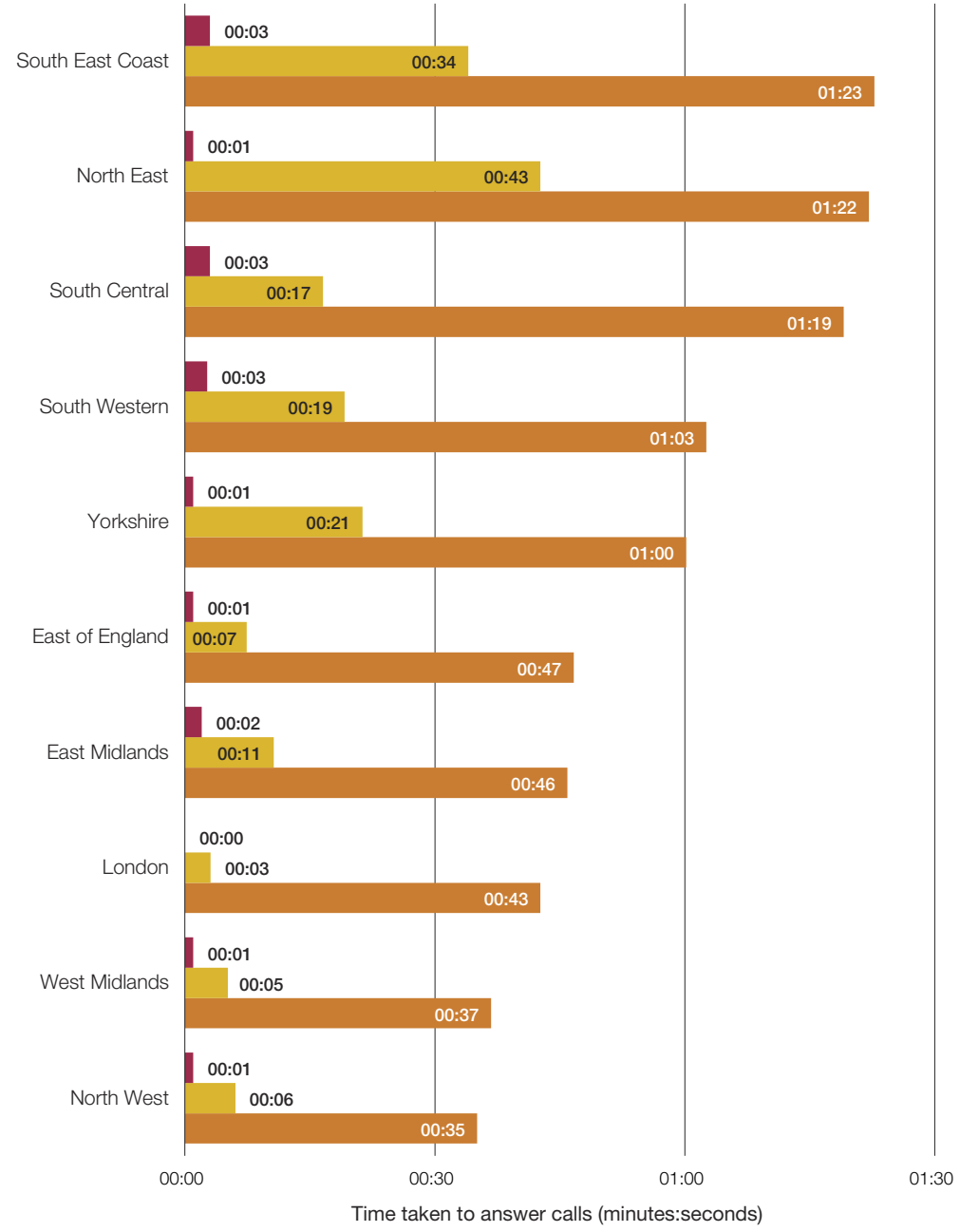
● A deterioration in performance

Source: National Audit Office analysis of NHS England data

Figure 15

Time taken to answer calls by NHS ambulance trust, 2015-16

In 2015-16, there were large variations between trusts in the waiting time for the slowest 1% and 5% of calls answered, with a small proportion of patients waiting more than a minute for their call to be answered



Source: National Audit Office analysis of NHS England data

2.13 If patients need an emergency ambulance response, then the wait from when the 999 call is made to when an ambulance-trained healthcare professional arrives should be as short as possible, because urgent treatment may be needed. Some trusts take far longer than the 8-minute target to respond to a small proportion of calls, and there is wide variation between trusts in their response times to the slowest 1% and 5% of Red calls attended. For example, 99% of calls were reached within 23 minutes in Yorkshire, compared with 45 minutes in South Western (**Figure 16** overleaf).

2.14 All ambulance trusts publish Quality Accounts to demonstrate that they ask people what they think of the service. They also demonstrate that they act on that information to continuously improve patient care by setting new targets and priorities and implementing new initiatives. Ambulance trusts collect information on clinical effectiveness, patient safety and patient experience by looking at the number of serious incidents, complaints, concerns and compliments. These measures indicate that service quality may have deteriorated over the last few years. For example, between 2011-12 and 2015-16, the number of serious incidents increased from 50 to 79 per 10 million people. The increase in serious incidents could be the result of deteriorating performance or better reporting of incidents.

2.15 However, patient survey data indicate a high level of satisfaction with ambulance services. In 2015-16, 94% of ambulance patients who were treated at the scene said they would recommend the service to their friends and family if they needed similar care or treatment.[10] A survey of the experiences of more than 2,900 people who called the ambulance service and received clinical advice over the phone in December 2013 and January 2014 found that:

- 95% of respondents said they felt treated with respect and dignity, as well as with kindness and understanding by the ambulance service; and
- 76% of respondents rated their overall experience with the ambulance service (using a 0–10 scale with 10 being good) as 8 or more, with 47% giving a 10 rating.[11]

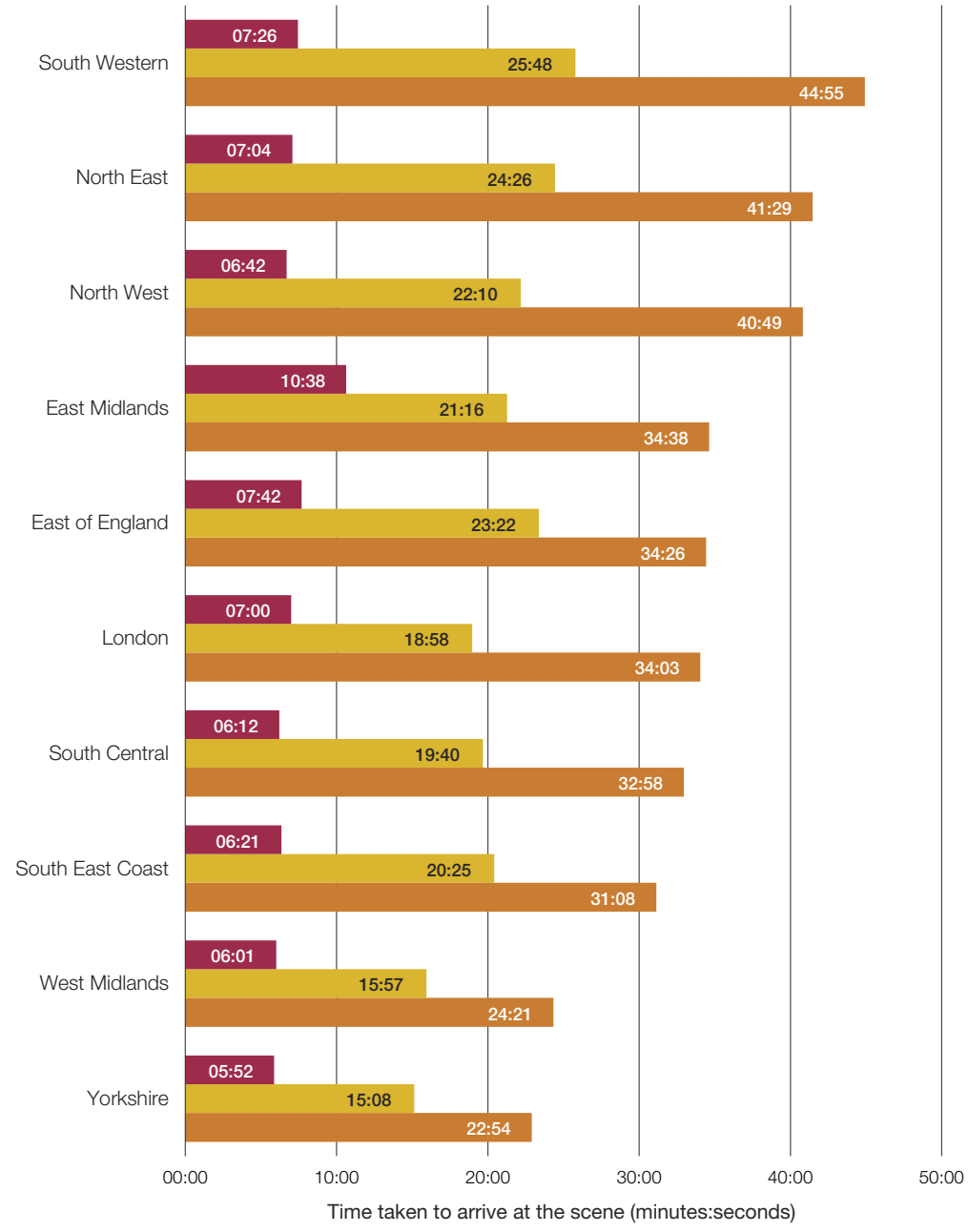
10 NHS England, Friends and Family Test data, Organisational level tables, 2015-16. Available at: www.england.nhs.uk/ourwork/pe/fft/friends-and-family-test-data/fft-data-historic/#amb

11 Care Quality Commission, Ambulance survey of 'Hear and Treat' callers 2013/14. Available at: www.cqc.org.uk/content/ambulance-survey-hear-and-treat-callers-201314

Figure 16

Time taken for a health professional to arrive at the scene of a Red call by NHS ambulance trust, 2015-16

In 2015-16, there were large variations between trusts in their response times to the slowest 1% and 5% of Red calls attended, with a small proportion of patients waiting more than 30 minutes when they should receive a response in 8 minutes



Source: National Audit Office analysis of NHS England data

Other performance and quality measures

2.16 The Care Quality Commission is the independent regulator of health and social care in England. It regulates, inspects and rates NHS ambulance trusts according to how safe, effective, caring, responsive and well-led they are, using four levels: outstanding, good, requires improvement and inadequate. **Figure 17** shows that one trust has been rated as outstanding, two trusts have been rated as good, five have been rated as requiring improvement and two have been rated as inadequate. The two trusts rated as inadequate have been placed into special measures, until they resolve their most significant failings. Special measures are a number of actions that the two health sector regulators can take to help trusts resolve their failings.

2.17 Between 2011-12 and 2015-16, the average time an ambulance spent on one job (job cycle time) increased from 75 minutes to 88 minutes for Red 1 and Red 2 calls, an increase of 17%. For Green calls, it increased from 79 minutes to 104 minutes, an increase of 32%. Factors contributing to this increase are likely to include: treating more patients at the scene, which may take longer than taking patients to hospital; how efficiently trusts use their resources; and external factors such as the extent of access to alternative care pathways, delays in transferring patients at hospital and service reconfigurations, which may result in longer patient journeys.

Figure 17
Care Quality Commission inspection ratings by NHS ambulance trust

Two ambulance trusts are currently rated inadequate

Trust	Overall	Safe	Effective	Caring	Responsive	Well-led
East of England	Requires improvement	Requires improvement	Requires improvement	Good	Requires improvement	Requires improvement
East Midlands	Requires improvement	Inadequate	Requires improvement	Good	Good	Requires improvement
London	Inadequate	Inadequate	Requires improvement	Good	Requires improvement	Inadequate
North East	Good	Good	Good	Good	Good	Good
North West	Requires improvement	Requires improvement	Good	Good	Good	Requires improvement
South Central	Good	Good	Requires improvement	Good	Good	Good
South East	Inadequate	Inadequate	Requires improvement	Good	Requires improvement	Inadequate
South Western	Requires improvement	Requires improvement	Requires improvement	Outstanding	Good	Requires improvement
West Midlands	Outstanding	Good	Outstanding	Outstanding	Good	Good
Yorkshire	Requires improvement	Requires improvement	Requires improvement	Good	Requires improvement	Requires improvement

- Outstanding
- Good
- Requires improvement
- Inadequate

Source: Care Quality Commission

Part Three

Service and financial sustainability

3.1 In order for the ambulance service to maximise the impact that it can have on the service and financial sustainability of the NHS, it needs to be cost-effective. Individual ambulance trusts need to collaborate effectively with each other, with the wider health system and with other key stakeholders. This part examines these issues and the factors that have an impact on variations in performance and cost-effectiveness.

Cost-effectiveness

3.2 The cost-effectiveness of ambulance trusts varies considerably:

- **Figure 18** shows the index of reference costs for ambulance trusts in 2015-16, the average costs incurred in providing different treatments or services which can be aggregated into an organisation-wide measure of efficiency. These data indicate that the relative efficiency of ambulance trusts varies between 89 and 106, with 100 representing the average.
- **Figure 19** on page 40 shows the average cost per emergency call or per face-to-face attendance in 2015-16. Between 2011-12 and 2015-16, the average cost per call across the ambulance service remained stable at around £190, and the cost per attendance increased from £254 to £270.

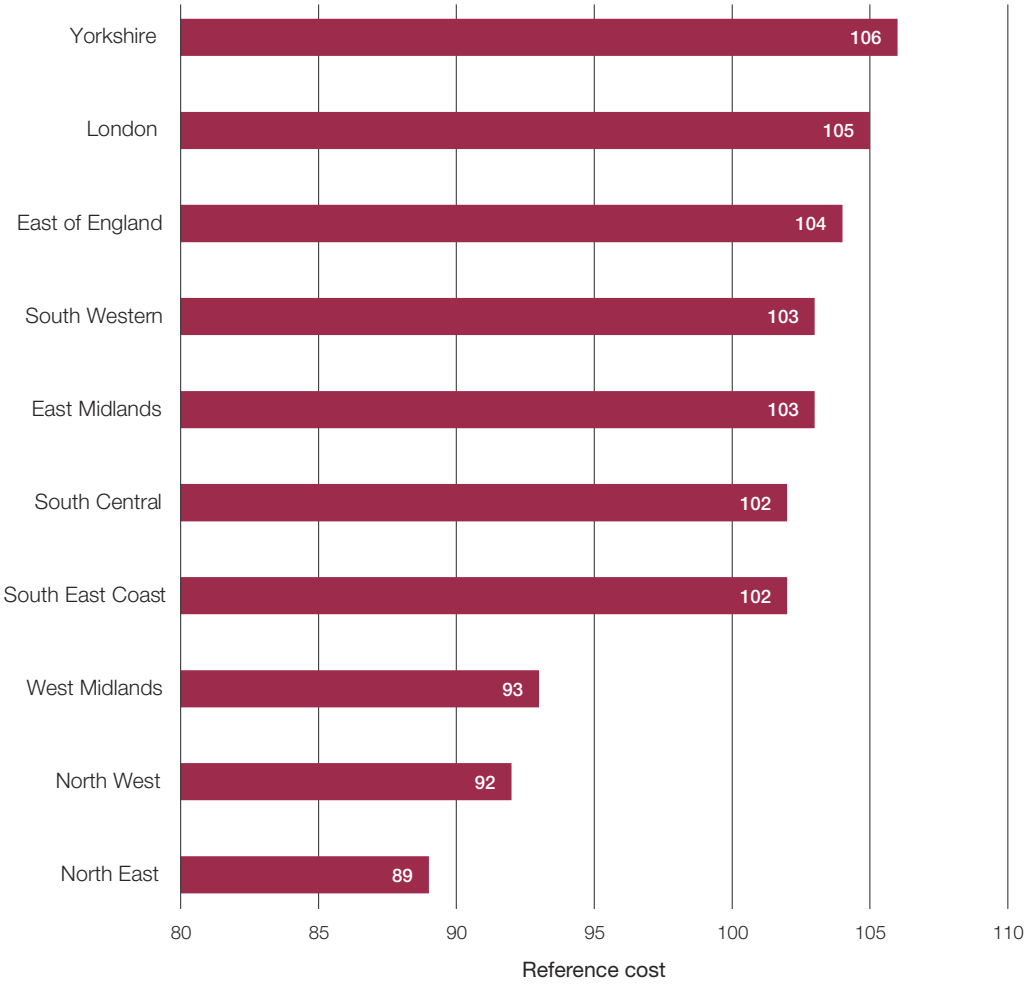
Factors impacting on variations in cost-effectiveness and performance

3.3 Since our previous report on the ambulance service, variations between trusts across most performance and cost-effectiveness measures have increased (**Figure 20** on page 41). Some of the variations are caused by factors outside trusts' control, such as the volume and nature of demand, the condition of the road network, what other health services are available locally, and how rural the area is. For example, all ambulance trusts, except London, serve a significant rural population, where less frequent calls and more widely spaced incidents have an impact on their ability to meet response time standards, the length of their job cycle time and the cost of operating the service. However, much of the variation is caused by factors within the control of ambulance services or the wider health system.

Figure 18

Index of reference costs by NHS ambulance trust, 2015-16

The reference cost index ranged between 89 and 106 across trusts in 2015-16



Notes

1 Adjusted for market forces factor.

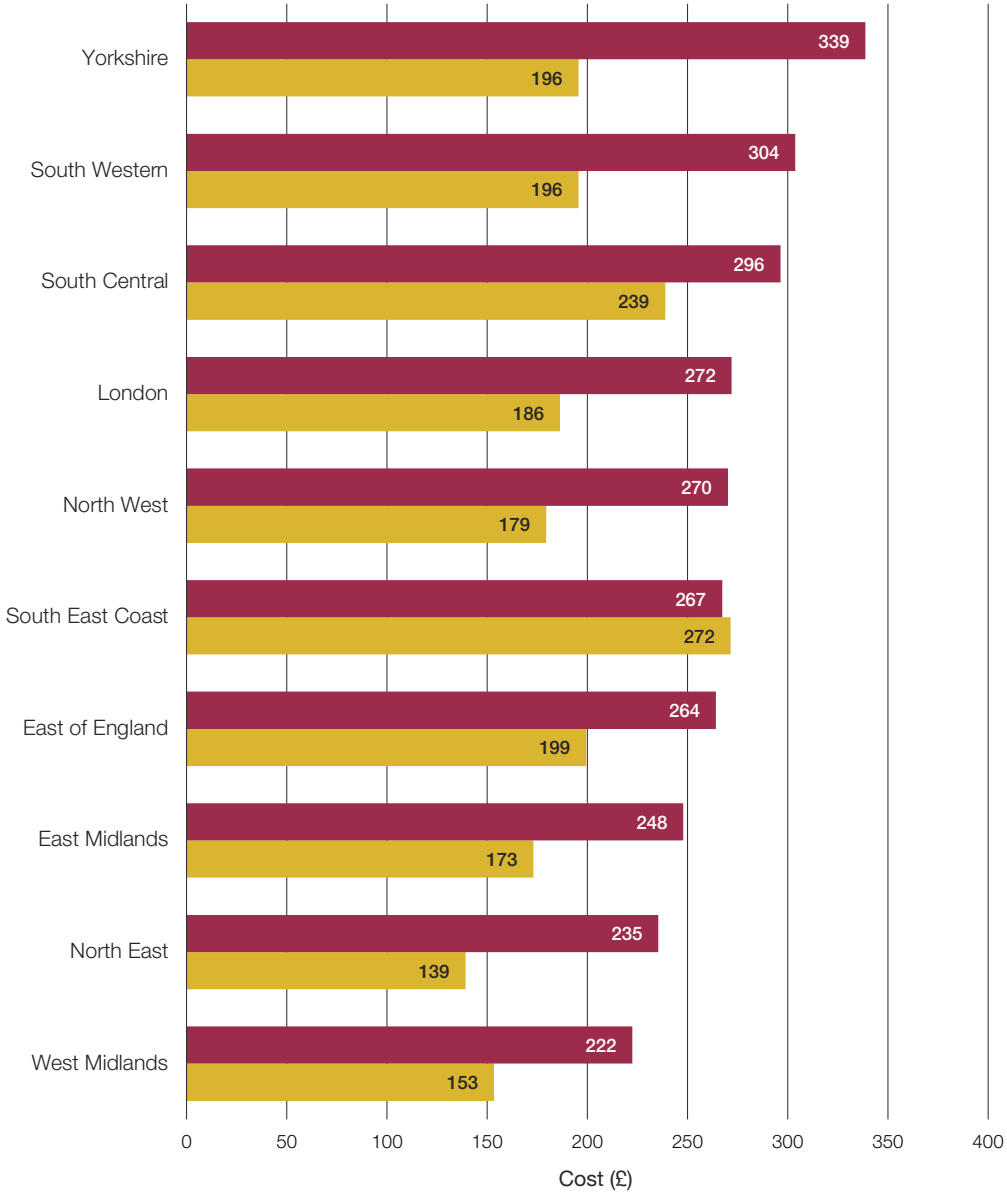
2 100 represents the average cost across ambulance trusts.

Source: National Audit Office analysis of Department of Health data

Figure 19

Cost per ambulance call and attendance by NHS ambulance trust, 2015-16

In 2015-16, there was wide variation across the trusts, in the cost per call and in the cost per face-to-face attendance



Notes

1 Cost per call and cost per face-to-face attendance are calculated by dividing a trust's urgent and emergency care income by the number of calls presented to its switchboard, or the number of face-to-face responses it makes.

2 Face-to-face incidents are those resulting from 999 calls and NHS 111 transfers and do not include urgent referrals for patient transport from other health care professionals.

Source: National Audit Office analysis of NHS England and ambulance trusts' data

Figure 20
Variations in performance

Variations in trusts' performance have increased on a number of important metrics since we last reported

Indicator	Variation in 2009-10	Variation in 2015-16	Change
Index of reference costs[1]	85 to 112	89 to 106	Variation has reduced
Percentage of expenditure on front-line services[2]	60% to 70%	44% to 63%	Variation has increased
Red 1/Category A 8-minute response times[3]	70.8% to 78.3%	68.1% to 78.5%	Variation has increased
Sickness absence rate	4.2% to 6.5%	3.7% to 6.7%	Variation has increased
Calls resolved over the phone	1.3% to 4.5%	5.2% to 15.2%	Variation has increased
Incidents resolved without conveyance to an accident and emergency department	17.5% to 50.0%	30.9% to 52.4%	Variation has reduced

Notes

1 Adjusted for the market forces factor.

2 Expenditure on front-line services includes front-line staff costs (excluding contact centre staff) and vehicle costs (including fleet maintenance staff).

3 Prior to 2012-13 the most serious calls were called 'Category A' calls, rather than 'Red 1' calls.

Source: National Audit Office analysis of Department of Health, NHS Digital, NHS England and ambulance trusts' data

Ambulance trusts' operating frameworks

3.4 Ambulance trusts use different operating frameworks to meet their objectives, and differences in these frameworks have led to variations in their performance against ambulance quality indicators, progress in implementing new models of care and cost-effectiveness. Operating frameworks have been driven by meeting response time targets and reducing costs, but there is general consensus that commissioners, regulators and providers place too much focus on response times. The majority of patients currently coded as Red 2 do not derive clinical benefit from the arrival of an ambulance resource within 8 minutes. Despite this, the Red 2 target has led to a range of operational behaviours that undermine the efficiency of the ambulance service, such as dispatching resources before it has been determined what the problem is, and whether an ambulance is actually required; dispatching multiple ambulance vehicles to the same patient and then standing down the vehicles least likely to arrive first. These behaviours can lead to longer waits for lower priority 'Green' patients, who also require assessment and treatment or conveyance.

3.5 In 2015, NHS England established the Ambulance Response Programme, which aims to improve response times to critically ill patients and to make sure that the most appropriate resource is provided to each patient first time. NHS England plans to publish a report summarising the findings of this programme in spring 2017. Ambulance trusts stressed the importance of moving quickly to implement any potential changes arising from the programme, in the light of increasing demand. There are three elements to the programme:

- Dispatch of the most clinically appropriate vehicle to each patient within a timeframe that meets their clinical need. Six ambulance trusts (two since February 2015 and further four since October 2015) have been allowed additional time to determine the most appropriate response to all calls except Red 1 999 calls. These trusts have also been piloting the use of a new pre-triage set of questions to identify those patients in need of the fastest response (Red 1) at the earliest opportunity.

- Development and trialling of a new, evidence-based set of clinical codes (definitions of emergency calls) that better describe the patient's presenting condition and the response or resource required. This trial is currently being run in three trusts.

- Development and piloting of a new set of performance standards based on clinical outcomes that benefit patients, rather than based on time alone.

3.6 Key variables within the operating frameworks include:

- The grade mix and skills mix of the workforce (**Figure 21** on page 44). Having more highly qualified staff can allow trusts to resolve more calls over the phone or at the scene but can be more expensive.

- The vehicle fleet mix (**Figure 22** on page 45). There are two main types of vehicle used by trusts: double-crewed ambulances, which are capable of conveying a patient; and rapid response vehicles (cars and motorbikes) which are not normally used for conveying a patient. Having more rapid response vehicles helps trusts reach patients more quickly and meet response time targets, but may not always be in the best interests of the patient (for example, someone who needs to be taken to a hospital stroke unit). Trusts can also choose between two types of ambulance: a less expensive van conversion or a more expensive box conversion (equipped with a patient lift), and whether to own or lease their vehicles.

- The number of vehicles dispatched to an incident. Trusts have different allocation policies. In some cases there will be clinical reasons for dispatching more than one vehicle, but in other cases response time targets appear to have created unintended incentives for some trusts to deploy multiple vehicles to a single incident in order to meet the target. In 2015-16, some 3.7 million vehicles were deployed and then stood down. The proportion of incidents in which an ambulance was deployed and later stood down varied from 4% to 46% across trusts in 2015-16.

- The estate and how this is managed. Some trusts have rationalised their estates and employ a hub and spoke model with fewer ambulance stations and multiple standby points.
- Use of a 'make ready' service to prepare ambulances. Some trusts believe the use of a specialised team to stock and prepare vehicles before each shift is more cost-effective than asking individual ambulance crews to do so.
- Use of private ambulance services to manage demand.

Appendix Four provides further details on differences in trusts' operating frameworks.

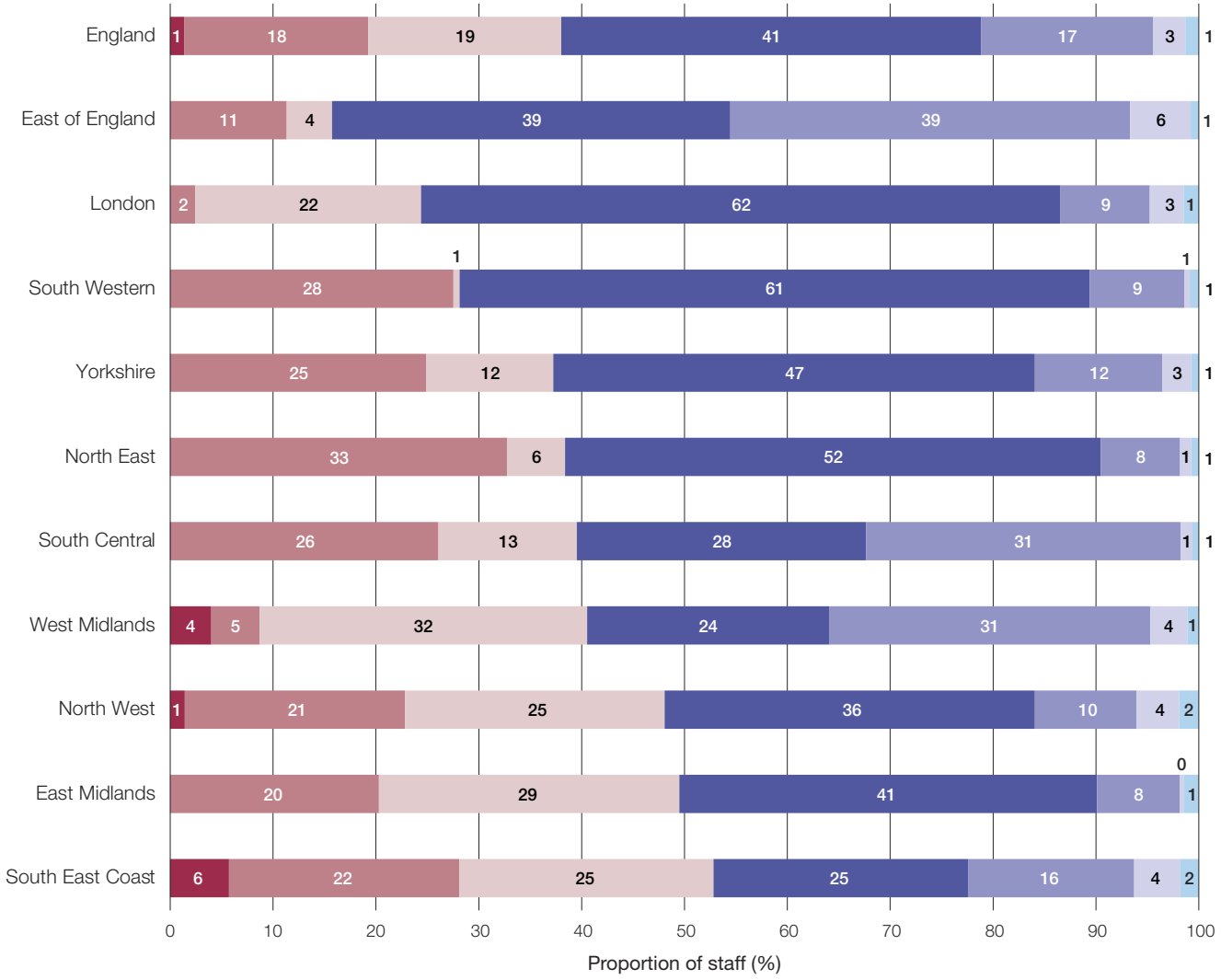
3.7 Typically, there is not a straightforward relationship between any single operating choice and performance, as there are multiple contributing factors, many of which are interdependent. It is not clear what the optimal operating framework is, and it is likely to be different for urban and rural areas. West Midlands Ambulance Service performs well against current response time targets and cost-effectiveness measures, but performs less well resolving calls over the phone. It cites three features of its operating framework as being central to its performance:

- Workforce mix. The trust aims to have a paramedic on every vehicle by the end of 2016, does not use private or voluntary sector ambulances and keeps its use of agency staff to a minimum. It recruits staff, at the lower non-paramedic bands, from the local community and invests in training them to paramedic level. It spent 8% of non-staff expenditure on education and training in 2015-16, more than any other trust.
- Fleet. The trust has one of the highest ratios of double-crewed ambulances to rapid response vehicles in England and uses only van conversion ambulances, which are less expensive to buy and maintain than box conversion ambulances.
- Estate. The trust uses a 'make ready' service to reduce the time required to prepare ambulances for each shift, operated within a 'hub and spoke model' in which 15 hubs support a network of community ambulance stations throughout the region.

Figure 21

Breakdown of front-line staff by bands by NHS ambulance trust, 2015-16

Trusts employ a mix of technicians and healthcare assistants (bands 3 or 4), paramedics (typically band 5), and more experienced advanced practitioners (bands 6 or 7)



Pay bands

- Band 1 and 2
- Band 3
- Band 4
- Band 5
- Band 6
- Band 7
- Band 8 and 9

Note

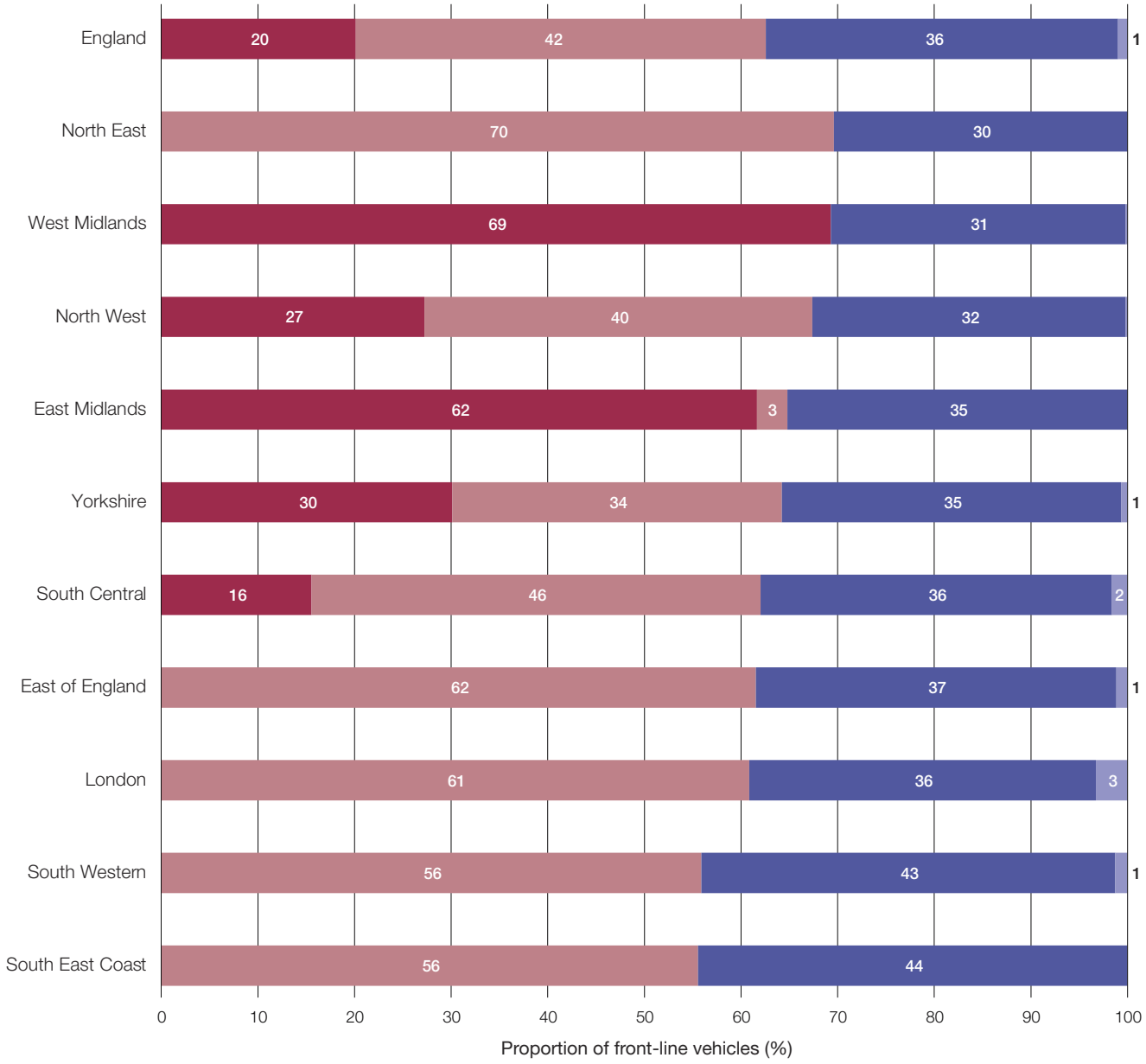
1 Proportion may not total to 100 due to rounding.

Source: National Audit Office analysis of ambulance trusts' data

Figure 22

Breakdown of fleet by type of vehicle by NHS ambulance trust, 2015-16

In 2015-16, North East Ambulance Service had the lowest ratio of rapid response vehicles to ambulances in England



Notes

1 Patient transport service and other vehicles are not included.

2 Proportion may not total to 100 due to rounding.

Source: National Audit Office analysis of ambulance trusts' data

The wider health sector

3.8 The wider health sector also contributes to variations in ambulance trust performance. For example, factors within the control of the wider health sector that contribute to variations in implementing new models of care include the extent to which:

- the region has developed a clinical hub based in its call centre, to advise and refer patients to other services, that is integrated with other urgent care providers;
- clinical hubs can access patients' GP and hospital records electronically, and clinical hubs and ambulance crews can access an up-to-date directory of services, detailing where patients can be referred, and at what times, and for what services; and
- alternative centres are available which accept patients brought in by ambulance crews and which offer a consistent service (both between centres and over time).

3.9 NHS England has undertaken a stocktake of the urgent and emergency care system, with the aim of informing local planning and ultimately making the system simpler and more consistent. As part of this stocktake they have identified the number of urgent care centres across England (**Figure 23**).

Data to help understand variation and improve performance

3.10 Our previous report noted that data were not always collected consistently across the ambulance trusts, meaning that performance could not always be compared and best practice shared. The Committee of Public Accounts recommended that ambulance trusts work with commissioners to develop a minimum data set including staff utilisation and hospital handover metrics. The Association of Ambulance Chief Executives has since developed an online dashboard presenting standardised data for 25 indicators. However, data are still not reported nationally on hospital handover times, staff utilisation or other efficiency metrics, and trusts raised concerns about the consistency of data reporting for calls resolved over the phone and clinical outcomes.

Collaboration

Other NHS ambulance services

3.11 Coordination across ambulance services takes place through 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 emergency preparedness and resilience, but there is scope for more effective collaboration. For example, trusts told us that they now procure all their uniforms jointly, but that this agreement took 4.5 years to reach.

Figure 23

Urgent care centres by NHS ambulance trust area

The number and type of urgent care centres accessible to ambulance trusts vary across the country

Ambulance trust	Centres co-located with hospital accident and emergency departments	GP-led health centre	Minor injury unit	Stand alone urgent care centre	Walk-in centre or clinic	**Total urgent care centres**
East Midlands	5	0	11	10	5	**31**
East of England	3	0	15	3	3	**24**
London	26	6	5	9	18	**64**
North East	3	0	11	11	16	**41**
North West	6	0	13	8	27	**54**
South Central	1	0	12	3	5	**21**
South East Coast	2	0	26	1	9	**38**
South Western	4	0	91	5	10	**110**
West Midlands	6	0	17	6	14	**43**
Yorkshire	6	0	16	2	14	**38**

Notes

1 Original data were grouped by urgent and emergency care network and have been realigned to ambulance trust areas.

2 Totals for each trust may be greater than the number of centres across England because some centres may be accessible to more than one trust.

3 Some of the urgent care centres may not accept patients from ambulances.

Source: National Audit Office analysis of NHS England data

Wider NHS

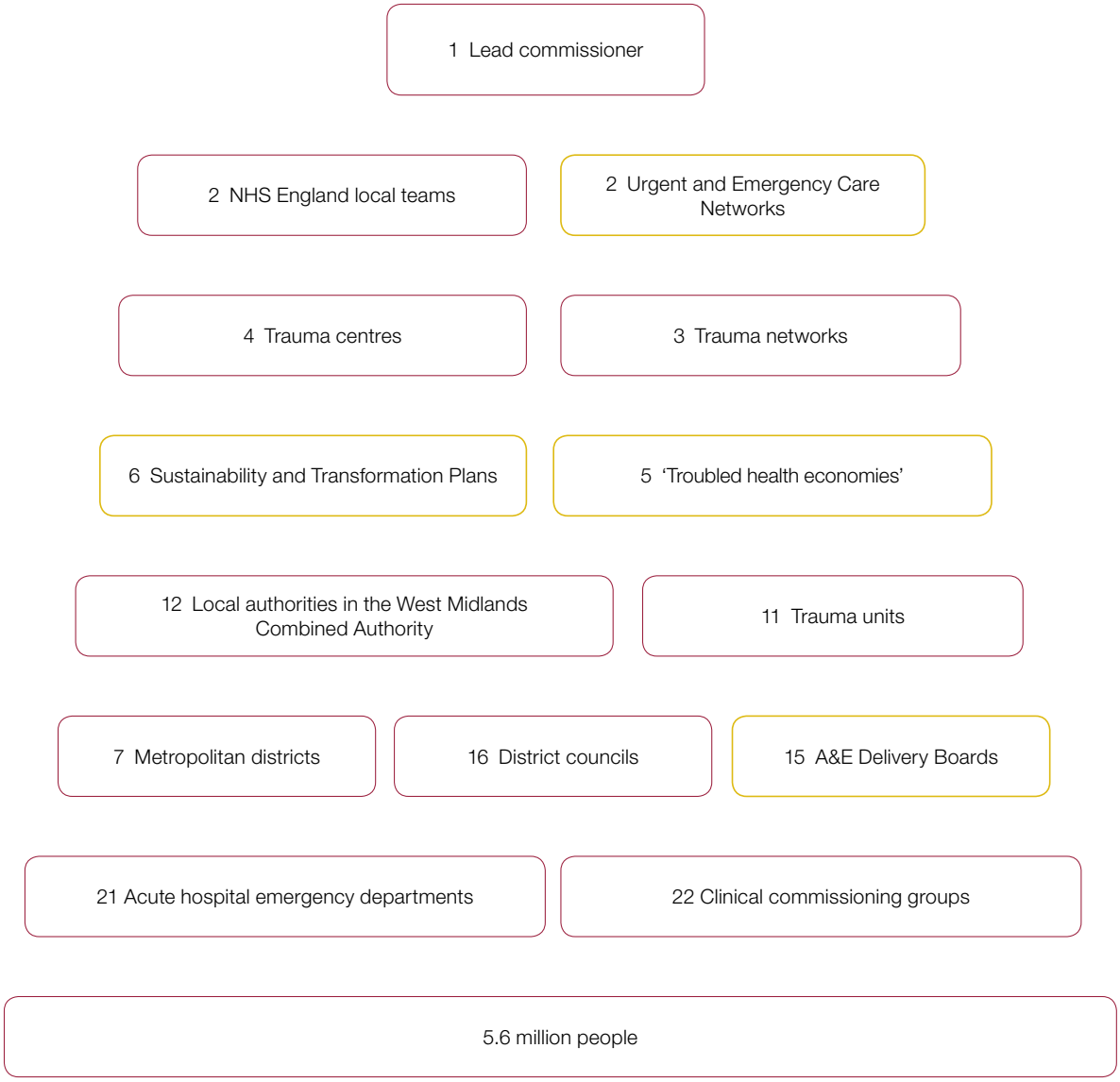
3.12 Effective collaboration with the wider NHS is vital to ensuring that all urgent and emergency care services are connected and integrated, a core aim of NHS England's Urgent and Emergency Care Review. However, the complexity of the healthcare system creates challenges for ambulance trusts in terms of engaging with all the relevant local stakeholders. Since we last reported on the ambulance service:

- twenty-three urgent and emergency care networks have been established to provide strategic oversight at a regional level, supported at an operational level by Accident and Emergency Care Delivery Boards (formerly known as System Resilience Groups);
- NHS England has introduced 44 Sustainability and Transformation Plan 'footprints', each of which will produce a plan explaining how local services can become sustainable over the next five years; and
- NHS England and Monitor (now NHS Improvement) identified 11 troubled health economies where a local health economy approach was needed to address long-standing healthcare issues.

3.13 Ambulance trusts typically cover a larger population than other stakeholders, and therefore will have relationships with more than one of each type of stakeholder (for an example, see **Figure 24**). They are also expected to maintain collaborative relationships with multiple police and fire services. Ambulance trusts have limited staff to manage their relationships with other stakeholders, and most trusts told us that they find it challenging to engage with all stakeholders because of this.

Figure 24
Healthcare stakeholders in the West Midlands

Ambulance trusts work with a growing number of stakeholders in an increasingly complex landscape



Note

1 Recent additions are highlighted in yellow.

Source: Data provided by West Midlands Ambulance Service NHS Foundation Trust

3.14 NHS England has produced guidance to support the development of local Sustainability and Transformation Plans. NHS England has asked urgent and emergency care networks, which ambulance services are expected to sit on, to provide expert advice to Sustainability and Transformation Plan areas on urgent and emergency care. However, it remains unclear how locally driven Sustainability and Transformation Plans will fit with the national aim of connecting and integrating all urgent and emergency care services and getting a consistent service offer across regions. The Plans are being taken forward in different ways across the country. For example, in the East of England, one urgent and emergency care network is seeking to influence six local Sustainability Transformation Plans in order to ensure they act coherently and strategically. In comparison, in London there are five networks, one embedded in each of the Sustainability Transformation Plan areas, seeking to manage the urgent and emergency care issues within these individual footprints. The standard contract for ambulance services for 2017-18 and 2018-19 will seek to incentivise engagement with Sustainability and Transformation Plan areas, although it is not clear how this will be achieved. This potentially presents a challenge to ambulance trusts who will need to engage with more than one area.

3.15 Despite their membership of urgent and emergency care networks, most ambulance trusts told us that their knowledge and experience were not always fully utilised by the wider health system. For example, they were not always informed or consulted (or if so, very late on) about major changes to local health services, such as accident and emergency department closures. However, some stakeholders from the wider health sector noted that some ambulance trusts chose not to fully engage with them.

Local communities

3.16 Ambulance trusts increasingly work with their local communities to manage demand, although there is variation in the extent to which they do so. All trusts organise community first-responders programmes in which they train local volunteers to provide potentially life-saving first aid until an ambulance arrives. Ambulance trusts and other organisations, such as charities and community groups, also equip public places with defibrillators, which can be used to treat somebody having a cardiac arrest until the ambulance crew arrives.

Other emergency services

3.17 In 2011, the Committee of Public Accounts recommended that there should be a review into joint working between the emergency services, to identify potential for efficiency savings and more effective service delivery.[12] Since then the government has introduced the Policing and Crime Bill to make provision for collaboration between the emergency services. This is currently going through Parliament.[13] The bill places a high-level duty on ambulance trusts to consider where they can collaborate with the police and fire services, but trusts are not required to enter into agreements they feel are not in their interests or those of the wider health service.

12 HC, Committee of Public Accounts, *Transforming NHS ambulance services*, Forty-sixth report of Session 2010–2012, HC 1353, September 2011.

13 HM Government, *Policing and Crime Bill 2015-16 to 2016-17*, http://services.parliament.uk/bills/2016-17/policingandcrime.html

3.18 Individual ambulance trusts are involved in a wide range of initiatives with police and fire services including cost-saving initiatives such as co-locating their facilities, sharing back-office facilities and joint procurement of goods and services, and initiatives to improve operational performance such as better data-sharing, and joint training exercises. However, there is variation in the level of collaboration and what areas are covered across trusts. For example, only nine ambulance trusts have agreements with the fire service to act as co-responders, in which the latter attend ambulance calls and provide care until the ambulance arrives. This typically involves attending a suspected cardiac arrest, and (if required) treating the patient with a defibrillator.

3.19 The Emergency Services Collaboration Working Group collates and disseminates good practice and academic research linked to collaborations between the services.[14] It recently published a report providing an overview of the current collaborative projects between emergency services that serves as a baseline for future research.[15] However, there is currently no national monitoring of these initiatives, so it is not clear how often good practice is taken up, how successful they are, or the financial savings they have achieved. Subject to funding, the Working Group plans to introduce greater evaluation in 2017 to assess which initiatives could transfer successfully to other locations.

3.20 Most collaboration occurs at a local level, but more recently there has been national oversight and sharing of good practice in a number of areas, such as:

- training in preparation for a joint response to major incidents, which is largely done through the Joint Emergency Services Interoperability Programme;
- management of patients with a mental health crisis. The Mental Health Crisis Care Concordat sets out how the organisations involved in the care and support of people in crisis, including the three emergency services, should work together to ensure that people get the help they need when they are having a mental health crisis; and
- joint management of demand for ambulance services originating from calls from the police, and the ambulance service's response to this demand.

14 The Working Group brings together senior leaders from the emergency services.
15 Emergency Services Collaboration Working Group, *National overview 2016*, November 2016.

Appendix One

Progress against the Committee of Public Accounts' recommendations[16]

Recommendation	Department of Health response	Our assessment of progress	Commentary
The Department of Health (the Department) should clarify roles and accountabilities for the emergency care system and quickly develop an intervention regime to protect 999 services in situations where providers fail.	Agreed	Moderate	Clinical commissioning groups are responsible for securing continued access to key NHS services, including ambulance services, if any provider is at risk of failing financially. Ambulance trusts are responsible for ensuring that business continuity and disaster recovery procedures are in place for the urgent and emergency care services they provide and for providing assurance to NHS England through boards that such arrangements are in place, in accordance with the Emergency Preparedness, Resilience and Response Core Standards. NHS Improvement is the financial and performance regulator for ambulance trusts, and the Care Quality Commission regulates the quality and safety of trusts. It is not clear how the localised nature of Sustainability and Transformation Plans, which set out how local services will become sustainable over the next five years, will impact on NHS England's aim of integrating all urgent and emergency care services.
The Department must clarify how ambulance services will be commissioned and what choice commissioners will have over the providers of emergency and urgent care.	Agreed	Good	In 2013, the responsibility for commissioning urgent and emergency care services was transferred from primary care trusts to clinical commissioning groups. Ambulance services are generally commissioned by a 'lead' clinical commissioning group on behalf the other clinical commissioning groups whose populations are served by that ambulance trust. Commissioners set standards through the NHS standard contract. Clinical commissioning groups are unable to commission urgent and emergency care from an ambulance trust outside their area.

16 HC Committee of Public Accounts, *Transforming NHS ambulance services*, Forty-sixth Report of Session 2010–2012, HC 1353, September 2011.

Recommendation	Department of Health response	Our assessment of progress	Commentary
The Department should set standard definitions for the data to be measured by each ambulance service to enable benchmarking, and certify the quality of data-generation systems. Commissioners should use these data as a basis on which to seek service efficiencies. Ambulance services should use them to share best practice and maximise efficiency.	Partially agreed	Moderate	The Department agreed with the spirit of the recommendation, but believed it was inappropriate for it to set standards for the ambulance services, as local services should choose definitions which best suit them. NHS England publishes performance against ambulance quality indicators. However, important metrics, such as turnaround times at hospitals and utilisation rates for staff and vehicles, are still not available in a standardised way and concerns have been raised that some ambulance quality indicators are not measured consistently. The Association of Ambulance Chief Executives has developed a publicly accessible dashboard to facilitate comparison of ambulance quality indicators and other metrics.
The Department should review how response times are measured to ensure that ambulance services have sufficient flexibility to identify the most appropriate response to calls before resources are deployed.	Agreed	Good	In June 2012, Category A calls (life-threatening) were split into Red 1 and Red 2 calls, with different clock start times to ensure a more appropriate response to calls. In 2015, NHS England established the Ambulance Response Programme. It consists of three elements: piloting additional time to assess all calls except Red 1 999 calls; developing and trialling of a new evidence-based set of clinical codes; and developing and piloting a new set of performance standards based on clinical outcomes that benefit patients, rather than being based on time alone. NHS England plans to publish a report summarising the findings of this programme in spring 2017.

continued overleaf

Recommendation	Department of Health response	Our assessment of progress	Commentary
Commissioners should take a consistent approach to penalising hospitals that do not adhere to the guidance of 15-minute handovers and the Department should also develop a quality indicator for hospital trusts on hospital handover times.	Partially agreed	Poor	The Department has not developed a quality indicator for hospital transfer times, noting that it has introduced an indicator measuring the time to initial assessment for all patients arriving by ambulance. In 2012, the NHS Confederation and the Association of Ambulance Chief Executives published a report encouraging healthcare leaders to make transfer delays a 'never event' (a serious incident that is considered to be wholly preventable) in their local health economies. Commissioners have not taken a consistent approach to penalising hospitals that do not adhere to the 15-minute transfer standard. Transfer delays have got worse.
The Efficiency Reform Group should work with the departments responsible for fire, ambulance and police services to commission an independent review. The review should examine what efficiencies and enhanced service delivery should be achieved by increased joint working across the emergency services and should look to maximise opportunities for co-location.	Partially agreed	Moderate	The Home Office introduced the Policing and Crime Bill, which is currently going through Parliament. The bill places a high-level duty on ambulance trusts to consider where they can collaborate with the police and fire services, but trusts are not required to enter into agreements they feel are not in their interests or those of the wider health service. There is evidence of increased collaboration between the fire, police and ambulance services such as co-locating facilities, co-responding, sharing data, doing joint training exercises, and so on. Most collaboration occurs at a local level, but there have been national collaboration programmes such as the Joint Emergency Services Interoperability Programme. The Emergency Services Collaboration Working Group collates and disseminates good practice and academic research linked to collaborations between the services. However, there is currently no national monitoring of these initiatives, so it is not clear how often good practice is taken up, how successful they are, or the financial savings they have achieved.

Source: National Audit Office

Appendix Two

Our audit approach

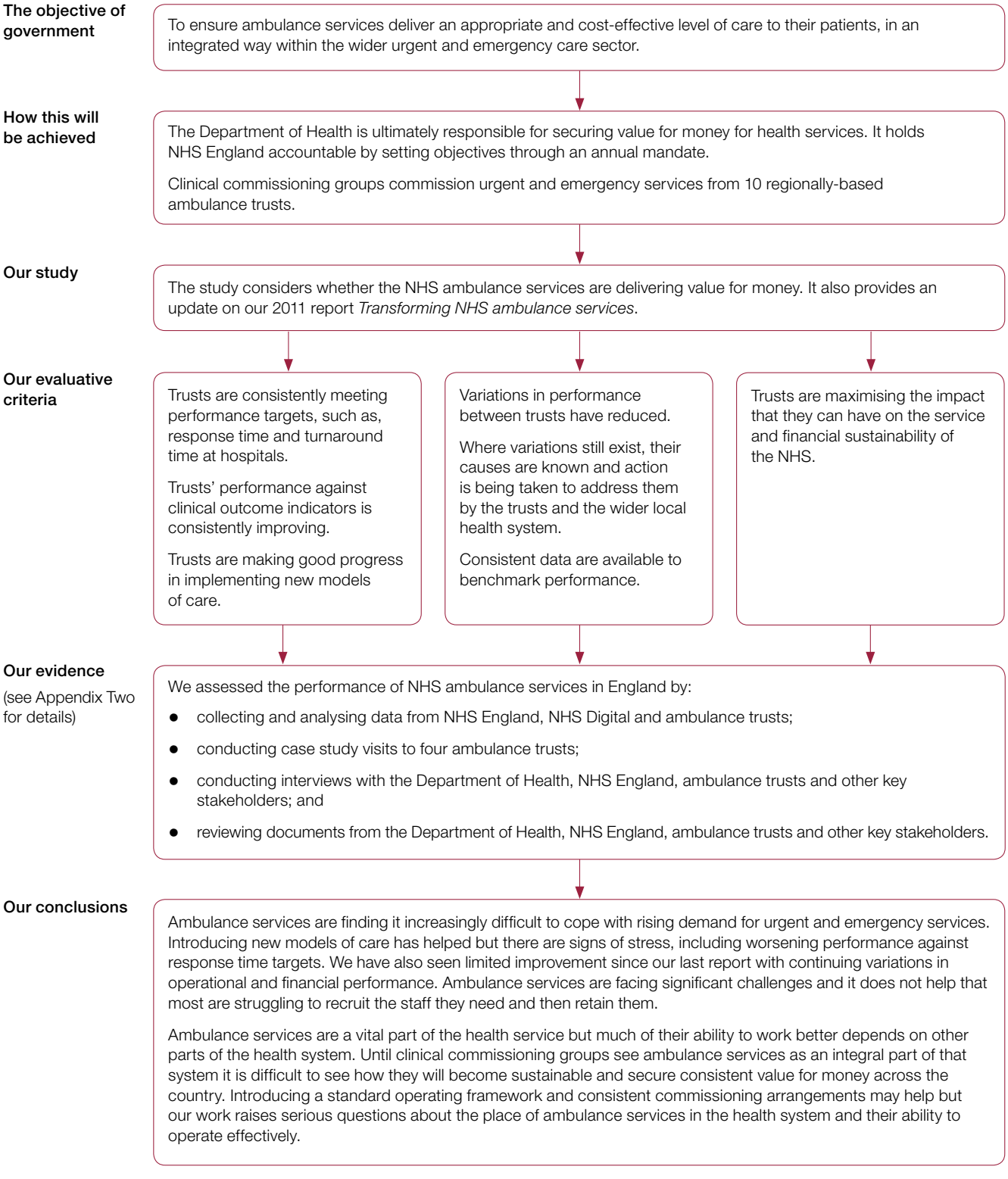
1 This report reviews the progress that the NHS ambulance services have made since our previous report and that of the Committee of Public Accounts.[17] This report assesses whether NHS ambulance services are providing value for money and examines whether:

- ambulance trusts are meeting essential performance targets and improving outcomes for patients;
- variations in the performance of ambulance trusts have reduced since we last reported; and
- ambulance trusts are maximising the impact that they can have on the service and financial sustainability of the NHS.

2 Our audit approach is summarised in **Figure 25** overleaf. Our evidence base is described in Appendix Three.

17 Comptroller and Auditor General, *Transforming NHS ambulance services*, Session 2010–2012, HC 1086, National Audit Office, June 2011; and HC Committee of Public Accounts, *Transforming NHS ambulance services*, Forty-sixth Report of Session 2010–2012, HC 1353, September 2011.

Figure 25
Our audit approach



Appendix Three

Our evidence base

1 We reached our independent conclusions on whether NHS ambulance services are achieving value for money after analysing evidence we collected between June and November 2016. Our audit approach is outlined in Appendix Two.

2 **We analysed operational, financial and performance data.** We examined trends and variations within and between trusts in terms of their operating frameworks and performance metrics. Data analysed included:

- the different types of services provided by ambulance services;
- call activity and resolution (including new models of care);
- reference costs, income and spend;
- staffing and fleet;
- performance against response time targets and other ambulance quality indicators, including clinical outcomes; and
- serious incidents.

3 Data sources included:

- NHS England and NHS Digital; and
- data provided by trusts using a data return template.

4 **We conducted case study visits to four ambulance trusts:** East of England Ambulance Service, London Ambulance Service, North West Ambulance Service and West Midlands Ambulance Service. We selected the trusts to provide differing geographical locations and a range of performance against response time targets, improving clinical outcomes and progress made with the implementation of new models of care.

5 The main aim of these case studies was to better understand the challenges faced by NHS ambulance trusts. We carried out semi-structured interviews with trust staff, covering five main topics: operational challenges facing the trust; challenges in moving to new models of care; benchmarking performance and becoming more efficient; working with the wider health sector; and working with the other emergency services.

6 For each case study, we also carried out semi-structured interviews with local stakeholders including: the lead commissioner for the trust; staff from organisations outside the trust with a key role in delivering new models of care; staff from local accident and emergency departments; and individuals working to support local urgent and emergency care services, such as accident and emergency delivery boards, urgent and emergency care networks, urgent and emergency care vanguards and delivering Sustainability and Transformation Plans.

7 **We conducted semi-structured interviews with individuals from a range of organisations.** The interviews were designed to help us understand the challenges facing NHS ambulance services and the progress they have made in delivering services since we last reported, and to identify good practice.

8 We spoke to those involved in the strategy, commissioning, oversight and delivery of NHS ambulance services, including the Department of Health, NHS England, the National Ambulance Commissioners Network, the Care Quality Commission, NHS Improvement and the Association of Ambulance Chief Executives. Other stakeholders we talked to included the College of Paramedics, the Emergency Services Collaboration Working Group, Health Education England, NHS Employers, NHS Providers, UNISON and the private sector auditors of ambulance trusts.

9 **We reviewed key documents.** These included departmental and NHS England strategy and guidance documents relating to urgent and emergency care and the ambulance service. For each trust, we also reviewed key documents relating to planning, performance and progress in delivering new models of care. We reviewed relevant documents from the wider health sector, such as those relating to urgent and emergency care networks and Sustainability and Transformation Plans.

Appendix Four

Services provided and operating set-up by ambulance trust, 2016-17

Figure 26
Services provided by NHS ambulance trust

Ambulance trust	Accident and emergency service	NHS 111	Patient transport services	Out-of-hours services
East Midlands	Yes	No	Yes (part)	No
East of England	Yes	No	Yes (part)	Yes (part)
London	Yes	Yes (part)	Yes (part)	No
North East	Yes	Yes (full)	Yes (full)	No
North West	Yes	Yes (full)	Yes (part)	No
South Central	Yes	Yes (full)	Yes (full)	No
South East Coast	Yes	Yes (part)	Yes (part)	No
South Western	Yes	Yes (part)	Yes (part)	Yes (part)
West Midlands	Yes	No	Yes (part)	No
Yorkshire	Yes	Yes (full)	Yes (part)	Yes (part)

Note

1 Ambulance trusts which provide NHS 111, patient transport services and out-of-hours services may provide these services for part or all of their region.

Source: National Audit Office analysis of ambulance trusts' data

Figure 27

Operating set-up of NHS ambulance trusts in England, 2015-16

Ambulance trust	Clinical hub	Non-paramedic clinicians in, or virtually connected to, hub	Ambulance trust provides NHS 111 service	Spend on private ambulances	Percentage of non-pay expenditure on private ambulances (%)
East Midlands	No, but other providers operate hubs	N/A[1]	No	£6.9m	14
East of England	Yes	GP, other doctor, general nurse	No	£6.6m	10
London	Yes	Mental health specialist	Yes (for part of region, not co-located with 999 clinical hub)	£13.1m	14
North East	Yes	GP, other doctor, general nurse, palliative care specialist	Yes (whole region, co-located with 999 hub)	£4.6m	12
North West	Yes	Pharmacist, mental health specialist	Yes (whole region, working towards virtual integration with 999 clinical hub)	£10.3m	13
South Central	Yes	Specialist nurse, pharmacist, mental health specialist, dental nurse, midwife	Yes (whole region, co-located with 999 hub)	£12.5m	19
South East Coast	No	N/A	Yes (for part of region, not co-located with 999 clinical hub)	£13.6m	20
South Western	Yes	GP, other doctor	Yes (for part of region, co-located with 999 clinical hub)	£5.0m	8
West Midlands	Yes	N/A	No	Nil	0
Yorkshire	Yes	Specialist nurse, mental health specialist	Yes (whole region, co-located with 999 hub)	£8.0m	10

Notes

1 East Midlands Ambulance Service is connected to clinical hubs providing GPs, other doctors, community nurses, specialist nurses, pharmacists, dentists and mental health specialists.

2 Percentage of vehicles leased (versus owned) excludes vehicles used for patient transport services.

3 Data correct at the time fieldwork was undertaken.

Source: National Audit Office analysis of ambulance trusts' data

Percentage of expenditure on vehicle costs (%)	Percentage of vehicles leased (versus owned)[2] (%)	Make-ready service	Percentage of non-pay expenditure on estate (%)	Number of ambulance stations	Number of standby points	Number of other buildings
10	29	No	9	63	23	4
7	97	Yes (part)	12	85	41	7
8	15	No (but planning a service)	9	71	0	14
9	22	Yes, in part – there is a service but crews also perform checks	10	55	40	2
8	31	Yes (piloting a service)	9	109	186	22
9	30	Yes	7	24	46	31
10	28	Yes	10	60	56	9
9	17	Yes	11	95	32	33
11	72	Yes	11	15	110	16
9	40	Yes (piloting a service)	8	61	34	15

Appendix Five

Ambulance quality indicators

Indicator	Description	Measure
1 Outcome from acute ST segment elevation myocardial infarction (STEMI)	Requires ambulance services to ensure delivery of rapid assessment and treatment for patients experiencing this type of heart attack, to restore coronary blood flow thereby improving patient outcomes.	Proportion of patients experiencing STEMI who receive primary angioplasty (surgery that repairs or unblocks a blood vessel) within 150 minutes, and proportion of such patients who receive an appropriate care bundle – aspirin, glyceryl trinitrate for angina, two pain scores and analgesia.
2 Outcome from cardiac arrest – return of spontaneous circulation	First cardiac arrest indicator.	Proportion of patients who are in cardiac arrest but have a pulse on arrival at hospital following resuscitation by ambulance crew (for all patients and for the Utstein comparator group, where the cardiac arrest had an initially shockable rhythm and was witnessed by a bystander).
3 Outcome from cardiac arrest – survival to discharge	Second cardiac arrest indicator.	Proportion of patients resuscitated by the ambulance crew who recover from cardiac arrest and are subsequently discharged from hospital (for all patients and for the Utstein comparator group).
4 Outcome following stroke for ambulance patients	Measures the time it takes from the 999 call to when stroke patients arrive at a specialist stroke centre so that they can be rapidly assessed for treatment called thrombolysis.	Proportion of suspected stroke patients (as assessed by the face-arms-speech test) who arrive at a specialist stroke centre within one hour, and proportion of such patients who receive an appropriate care bundle – face-arms-speech test, body mass and blood pressure recorded.
5 Proportion of calls closed with telephone advice or managed without transport to an accident and emergency department (where clinically appropriate)	Aims to reflect how the whole urgent care system is working, rather than simply the ambulance service, as it reflects the availability of alternative urgent care destinations (for example, walk-in centres) and providing treatment to patients in their home.	Proportion of calls receiving a telephone or face-to-face response that are resolved by telephone advice. Proportion of calls receiving a face-to-face response from the ambulance service, that are managed without the need for transport to a type 1 or 2 accident and emergency department.
6 Re-contact rate following discharge of care (closure with telephone advice or following treatment at the scene)	To ensure that ambulance trusts are providing safe and effective care the first time, every time, this indicator measures how many callers or patients call back within 24 hours of the initial call being made.	Proportion of emergency calls closed with telephone advice with re-contact via 999 within 24 hours. Proportion of patients treated and discharged on scene with re-contact via 999 within 24 hours.

Indicator	Description	Measure
7 Call abandonment rate	To ensure that ambulance services are not having problems with people phoning 999 and not getting through.	Proportion of calls presented to the switchboard that are abandoned before being answered.
8 Time to answer calls	To ensure that when people or patients dial 999, their call is answered quickly.	Time to answer call in seconds – median, 95th centile, 99th centile.
9 Service experience	All ambulance trusts need to demonstrate that they are finding out what people think of the service they offer and acting on that information to continuously improve patient care.	This indicator should include a qualitative understanding and description of user experience, and should not be restricted to reporting quantitative measures of user satisfaction from questionnaires.
10 Red 8-minute response time	Measures the speed of all ambulance responses to the scene of potentially life-threatening incidents and measures that those patients who are most in need of an emergency ambulance get one quickly.	Proportion of all Red 1 calls responded to within 8 minutes. Proportion of all Red 2 calls responded to within 8 minutes.
11 Time to treatment by an ambulance-dispatched health professional	If patients need an emergency ambulance response, then the wait from when the 999 call is made to when an ambulance-trained healthcare professional arrives should be as short as possible, because urgent treatment may be needed.	Time to arrival of an ambulance-dispatched health professional for Red 1 and Red 2 calls in minutes – median, 95th centile, 99th centile.

Notes

1 In addition to these indicators, all ambulance services are also monitored against the standard of an ambulance reaching 95% of Red 1 and Red 2 calls within 19 minutes.

2 Trusts also report the number of emergency and urgent incidents resulting in a patient being transported to a type 1 or 2 accident and emergency department. This includes NHS 111 transfers and transfers from another ambulance computer system. Unlike the proportion of face-to-face incidents resolved without transport to a type 1 or 2 accident and emergency department (see indicator 5), this indicator also includes requests for emergency response from another healthcare professional.

Source: NHS England and ambulance trusts' data

Appendix Six

Response time targets across the UK

1 England has the most demanding response time targets in the UK (**Figure 28**), but comparison between countries is not possible because of the different points at which the clock starts. In Northern Ireland it starts when the caller's telephone number, the exact location of the incident and the nature of the chief complaint have been established. In Scotland it starts when the chief complaint has been established, and in Wales it starts when the location of the incident has been established.

Figure 28
Response time targets and performance against targets

	Categories	Time targets	Performance, 2015-16 (%)
England	Red 1 – immediately life-threatening calls	75% within 8 minutes	72.5
	Red 2 – life-threatening calls, but not immediately time-critical	75% within 8 minutes	67.2
	Red 1 and 2 calls: where onward transport is required, a vehicle capable of conveying the patient arriving at the scene within 19 minutes in 95% of cases	95% within 19 minutes	92.6
	Green – not immediately life-threatening or serious	–	–
Scotland	A – immediately life-threatening calls	75% within 8 minutes	65.5
	B – serious calls, but not immediately life-threatening	95% within 19 minutes	81.7
	C – not immediately life-threatening or serious	–	–
Wales[1]	Red – immediately life-threatening calls	65% within 8 minutes	68.8
	Amber – calls from patients who may need treatment and care at the scene and fast transport to a healthcare facility	–	–
	Green – non-serious calls, which can often be managed by other health services	–	–
Northern Ireland	A – immediately life-threatening calls	72.5% within 8 minutes	53.5
	B – serious calls, but not immediately life-threatening	–	–
	C – not immediately life-threatening or serious	–	–

Note
1 Data from October 2015 to March 2016.

Sources: NHS England and data from the Scottish Ambulance Trust, StatsWales, Northern Ireland Department of Health

2 Like the English ambulance trusts, the Northern Ireland, Scottish and Welsh ambulance services are looking to implement new models of care and take fewer patients to accident and emergency departments. However, they have made less progress than in England. For example, the proportion of calls resolved over the phone was 10.2% in England in 2015-16, compared with only 8.6% in Scotland and 5.3% in Wales (data for October 2015 to March 2016 only). Northern Ireland started to resolve calls over the phone only in autumn 2015.

Appendix Seven

Green call standards by NHS ambulance trust

Trust	Type of Green call	Standard	Target	Performance achieved in 2015-16 (%)	Number of face-to-face incidents in 2015-16
East Midlands	Green 1	Face-to-face response within 30 minutes	85%	72	75,253
	Green 2	Face-to-face response within 30 minutes	85%	73	209,988
	Green 3	Response within 20 minutes (upgrade, refer or advise)	85%	87	6,331
	Green 4	Response within 60 minutes (upgrade, refer or advise)	85%	99	8,065
East of England	Green 1	Face-to-face response within 20 minutes	75%	75	31,839
	Green 2	Face-to-face response within 30 minutes	75%	73	249,374
	Green 3	Face-to-face response within 50 minutes or telephone response within 20 minutes	75%	81	26,689
	Green 4	Face-to-face response within 90 minutes or telephone response within 30 minutes	75%	83	96,130
	Urgent	Face-to-face response within 1, 2 or 4 hours depending on acuity	75%	68	57,260
London	Green 1	Face-to-face response within 20 minutes	90%	57	49,391
	Green 2	Face-to-face response within 30 minutes	90%	62	258,264
	Green 3	Face-to-face response within 60 minutes	90%	79	81,796
	Green 4	Face-to-face response within 60 minutes	90%	60	152,613
North East	Green 1	Face-to-face response within 20 minutes	75%	48	11,681
	Green 2	Face-to-face response within 30 minutes	75%	44	121,716
	Green 3	Face-to-face response within 60 minutes	75%	67	13,374
	Green 4	No target response	n/a	n/a	942

Trust	Type of Green call	Standard	Target	Performance achieved in 2015-16 (%)	Number of face-to-face incidents in 2015-16
North West	Green 1	Face-to-face response within 20 minutes	95%	70	48,068
	Green 2	Face-to-face within response 30 minutes	95%	71	311,367
	Green 3	Face-to-face response within 120 minutes	95%	99	62,990
	Green 4	Face-to-face response within 240 minutes	95%	97	135,652
South Central	Green 1–3	Face-to-face response in 30 minutes – combined green 30	90%	65	222,524
	Green 4	Face-to-face response in 60 minutes	90%	90	69,453
South East Coast	Green 4	Face-to-face within 60 minutes	95%	88	51,594
South Western	Green 1	Face-to-face response within 20 minutes	90%	79	15,164
	Green 2	Face-to-face response within 30 minutes	90%	74	324,489
	Green 3	Face-to-face response at normal road speed, response within 60 minutes or a phone assessment within 30 minutes	90%	90	13,854
	Green 4 (public incidents)	Clinical response within 60 minutes	90%	70	42,808
	Green 4 (healthcare professional incidents)	Requests from healthcare professionals to undertake urgent transfers of patients within 1, 2, 3 or 4 hours	70% within the agreed time window	62	54,689
West Midlands	Green 2	Face-to-face response within 30 minutes	90%	90	417,619
	Green 4	Face-to-face response or triage within 60 minutes	90%	100	52,568
Yorkshire	Green 1	Face-to-face response within 20 minutes	95% with a floor target of 80%	83	51,508
	Green 2	Face-to-face response within 30 minutes	95% with a floor target of 85%	76	186,073
	Green 3	Telephone assessment within 20 minutes, or face-to-face response within 30 minutes	95% with a floor target of 80%	80	8,174
	Green 4	Telephone assessment within 60 minutes, or face-to-face response within 60 minutes	No target	92	129,772

Source: National Audit Office analysis of ambulance trusts' data

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