



National Audit Office

REPORT BY THE  
COMPTROLLER AND  
AUDITOR GENERAL

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Department of Health

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# The management of adult diabetes services in the NHS

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National Audit Office

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Department of Health

# The management of adult diabetes services in the NHS

Report by the Comptroller and Auditor General

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Commons in accordance with Section 9 of the Act.

Amyas Morse  
Comptroller and Auditor General  
National Audit Office

17 May 2012

Diabetes is a chronic condition where the body does not produce enough insulin to regulate blood glucose levels. In 2009-10, there were an estimated 3.1 million people aged 16 years and older with diabetes in England, of which 2.34 million were diagnosed and 760,000 were undiagnosed. We estimate that NHS spending on diabetes services in 2010 was at least £3.9 billion, or around 4 per cent of the NHS budget.

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This report can be found on the  
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## Key facts

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**£3.9bn**

was spent on diabetes by the NHS in 2009-10, although this is likely to be an underestimate

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**3.1m**

people in England were estimated to have diabetes in 2010, with 2.34 million diagnosed

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**24,000**

people with diabetes estimated to be dying each year from diabetes-related causes that could be avoided

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**3.8 million**

people aged 16 and over are expected to have diabetes by 2020, an increase of 23 per cent on current levels

**49 per cent**

of people with diabetes received all nine of the National Institute for Health and Clinical Excellence recommended care processes in 2009-10

**6 per cent to 69 per cent**

variation in the percentage of people with diabetes receiving all nine of the National Institute for Health and Clinical Excellence recommended care processes across primary care trusts in 2009-10

**£649 million**

spent on drugs to treat diabetes in primary care in 2009-10, a 42 per cent increase from 2005-06

# Summary

**1** Diabetes is a chronic condition where the body does not produce enough insulin to regulate blood glucose levels. In 2009-10, there were an estimated 3.1 million people aged 16 years and older with diabetes in England, of which 2.34 million were diagnosed and 760,000 were undiagnosed. We estimate that NHS spending on diabetes services in 2009-10 was at least £3.9 billion, or around 4 per cent of the NHS budget.

**2** Around 10 per cent of people diagnosed with diabetes (240,000 people) have type 1 diabetes which occurs when the body produces no insulin. People usually develop type 1 diabetes before the age of 40, often during the teenage years. The remaining 90 per cent (2.1 million people) have type 2 diabetes, which occurs when the body cannot produce enough insulin to function properly, or when the body's cells do not react to insulin. The risk of developing type 2 diabetes increases with age, and is strongly linked to obesity and ethnicity.

**3** With structured education and appropriate support most people with diabetes can manage their condition themselves by, for example, eating a healthy diet, monitoring their blood glucose level, and taking insulin or glucose-lowering medication as needed. However, they also need regular checks to monitor treatable risks for diabetic tissue damage and to detect the early damage itself so that treatment can be given to prevent deterioration. In 2001, the Department of Health (the Department) published the National Service Framework for Diabetes (the Framework). The Framework set out the key interventions necessary to raise the standard of care provided by NHS organisations and healthcare professionals involved in delivering diabetes services, including as a minimum nine basic checks, or care processes, to detect the early signs of complications. The National Institute for Health and Clinical Excellence (NICE) has also set treatment standards for blood glucose, cholesterol and blood pressure, which, when achieved, reduce the risk of a person with diabetes developing complications.

**4** We examined whether the NHS in England is meeting the standards of care for diabetes set by the Department in 2001, and how effectively the Department and local commissioners of diabetes services have supported those responsible for delivering the expected improvements in diabetes care. Our report focuses on people aged 16 and over diagnosed with either type 1 or type 2 diabetes. Diabetes in pregnancy, and children and young people with diabetes, are outside the scope of our study because different clinical standards apply.

## Key findings

### **5 Treating diabetes is a significant and growing challenge for the NHS.**

The percentage of the population diagnosed with diabetes in England more than doubled between 1994 and 2009. Rising levels of obesity and the changing age and ethnic structure of the population of England are expected to contribute to a further rise in the number of people with diabetes. The total number of people with diabetes is expected to increase by around 700,000 from 3.1 million in 2010 to 3.8 million in 2020. The rise in the diabetic population means that absolute numbers of diabetes-related complications are increasing, even though the rates of some complications have stabilised. An increase in the number of people with diabetes will have a major impact on NHS resources unless the efficiency and effectiveness of existing services is substantially improved.

### **6 The Department has set clear standards for good diabetes care and is working to improve its information on whether the NHS achieves them.**

These standards, which were originally set out by the Department in 2001, have since been reinforced by NICE. The Department's aims were to improve health outcomes, raise the quality of diabetes services, and reduce variations between them. Since publishing the Framework, the Department has improved the identification of people with diabetes on GP practice registers, so that it can monitor their care more systematically. The Department has also supported the establishment of national clinical audit, and the development of a range of tools, guidance and datasets to support commissioners of diabetes services.

### **7 In 2009-10, national clinical audit data found that only half of the increasing number of people with diabetes received all the recommended care processes that could reduce their risk of developing diabetes-related complications.**

People with diabetes require regular review of clinical indicators of disease progression. Despite the Department setting clear standards for good diabetes care, analysis from general practice records in the 2009-10 *National Diabetes Audit* found that under half (49 per cent) of people with diabetes received all the care processes recommended for the monitoring of risk factors for tissue damage. Without regular monitoring and treatment, this damage can lead to complications such as blindness, amputation and kidney disease, which significantly affect patients and NHS resources.

**8 Less than one in five people with diabetes are achieving recommended treatment standards that reduce their risk of developing diabetes-related complications.** The risk of developing complications can be minimised if people with diabetes achieve recommended treatment standards to control blood glucose, blood pressure, and cholesterol levels. Our analysis found that in 2009-10, 16 per cent of people with diabetes achieved all three treatment standards combined. Sixty-nine per cent of people with diabetes failed to achieve one or more of the three treatment standards and 15 per cent were not tested at all, putting both groups at a higher risk of developing future complications.



**9 There is significant variation in the quality of care received by people with diabetes across the NHS.** In 2009-10, the *National Diabetes Audit* found that the percentage of people with diabetes receiving all nine recommended care processes varied from 6 per cent up to 69 per cent between primary care trusts. There were also large variations across the NHS in the percentage of patients achieving treatment standards such as recommended levels for glucose control, and developing diabetes-related complications such as end-stage kidney disease. These variations cannot be explained by need or spending alone and are likely to be influenced by the local organisation and management of health services.

**10 The Department has not managed effectively the performance of primary care trusts in delivering diabetes services or held them to account for poor performance.** The Department holds information to assess performance but there is a lack of accountability for primary care trusts who fail to ensure that the recommended standards of care are met. Between 2006-07 and 2009-10, the percentage of people with diabetes receiving the recommended standard of care increased from 36 per cent to 49 per cent. Most primary care trusts improved during the period but the extent of this improvement was highly variable. Some primary care trusts improved from a very low starting point, while others improved only a small amount from a higher starting point. No primary care trust achieved the aim of delivering all nine basic care processes to all people with diabetes, with the highest performing trust achieving a figure of 69 per cent.

**11 The Department's cost data do not capture the full costs of diabetes nationally.** Spending on diabetes services has increased from £0.9 billion in 2006-07 to £1.3 billion in 2009-10. These figures are likely to be a substantial underestimate because of a lack of good-quality cost data for primary care and community services, which provide the majority of care, and because of the way in which costs are assigned to hospital activity. We estimate that the total cost of diabetes to the NHS in 2009-10 was at least £3.9 billion.

**12 The NHS does not clearly understand the costs of diabetes at a local level, and so lacks clarity about the most effective ways to deliver diabetes services.** Our visits to primary care trusts identified a variety of different approaches to delivering diabetes services, with some led by GP practices, some led by hospital and specialist services, and some led by intermediate community services. While the Department expects NHS organisations to deliver services in ways which best meet the needs of their local population, a lack of good-quality cost data means that primary care trusts lack clarity on the cost of their chosen delivery model, or what benefits they have achieved. We also found variation in patient education, diabetes training for NHS staff, and in providing diabetes specialist nurses, despite evidence to show that such interventions lead to long-term cost savings.

**13** We estimate that through better understanding and management of people with diabetes, the NHS could save £170 million a year. Through earlier detection and management of diabetes-related complications in primary care, fewer people with diabetes would require more costly specialist treatment. We estimate that the NHS could save some £170 million a year by reducing hospital activity, and changing the way in which diabetes patients are managed. If the NHS could:

- reduce hospital admissions (excluding readmissions) for people with diabetes by 10 per cent, it could save £34 million a year by avoiding excess hospital activity;
- reduce insulin errors in hospital by 50 per cent, it could save at least £3.25 million a year by improving patient care;
- reduce late referrals to specialist foot teams by up to 50 per cent, it could save at least £34 million a year by decreasing the number of major amputations among people with diabetes; and
- ensure safer discharge from hospital for people with diabetes, it could save £99 million a year through reducing emergency readmissions to the same rate as for people of the same age without the condition.

### Conclusion on value for money

**14** The Department estimates that spending on diabetes services increased from £0.9 billion in 2006-07 to £1.3 billion in 2009-10. These figures are likely to be a substantial underestimate and are based on incomplete data. We estimate that a more accurate cost in 2009-10 was £3.9 billion.

**15** In 2001, the Department set out clear minimum standards for what constitutes good diabetes care, including nine basic care processes, to reduce the risk of people developing avoidable diabetic complications. These complications diminish quality of life and place a significant burden on the NHS. Since the Department published these standards, there have been improvements in the level of care that people with diabetes receive but a number of significant issues still need to be addressed. In particular, variations in services and outcomes need to be reduced across the NHS and delivery of some care processes needs to be increased. In 2009-10, the *National Diabetes Audit* recorded that 49 per cent of people with diabetes received the full set of nine care processes (an increase from 36 per cent in 2006-07). Eighty-four per cent of patients were at greater risk of developing avoidable complications due to them not achieving desired standards for blood glucose, blood pressure and cholesterol in 2009-10. It is also estimated that up to 24,000 people die each year from avoidable causes related to their diabetes. On the basis of this performance against the expected levels of care, the low achievement of treatment standards and the high number of avoidable deaths we conclude that diabetes services in England are not delivering value for money.

## The Department's view on value for money

**16** The Department considers that good progress has been made in improving services for people with diabetes since the National Service Framework was published in 2001, and that there are some positive indicators of value for money in the Department's expenditure on diabetes. However, the Department recognises that a number of significant issues still need to be addressed – in particular that variations in services across the country need to be reduced and delivery of some care processes increased – before value for money from expenditure on diabetes is achieved across the board.

## Recommendations

**17** Our recommendations are set against the background of planned changes to the structures for commissioning NHS services set out in the *Health and Social Care Act (2012)*. Under these changes, local clinical commissioning groups – comprising groups of GP practices, doctors, nurses, and other health and social care professionals – will become responsible for resourcing and commissioning most secondary care services. An NHS Commissioning Board will be established to lead the system, and will also be responsible for directly commissioning primary care services and some specialist services. The NHS Commissioning Board will be nationally accountable to the Department for whether the NHS improves outcomes against selected indicators of good quality healthcare.

**18** One of the main tasks of the NHS Commissioning Board is to ensure the NHS remains financially stable as well as achieving continuous improvement in quality. The current economic climate means that there is likely to be little or no growth in NHS funding over the next five years. With the significant rise in the number of people in England with diabetes, the NHS Commissioning Board must therefore ensure that services for this large population are adequate, and deliver the recommended standards of care. This will help minimise the additional costs to the NHS from complications, arising because standards are not being met.

**a** **The number of people with diabetes in England is projected to increase to 3.8 million people by 2020.** The Department and Public Health England should consider what further steps they will take to change this projection. In addition, in its agreement with the NHS Commissioning Board, the Department should ask specifically for improvements in outcomes for diabetes. Furthermore, the NHS Commissioning Board should include appropriate indicators within the Commissioning Outcomes Framework to ensure a local focus on delivering all nine care processes.

- b Payment mechanisms currently available to GPs are failing to ensure sustained improvements in outcomes for people with diabetes.** The current system of incentives needs to be reviewed and renegotiated to improve outcomes for people with diabetes in accordance with clinical practice recommended by the Framework and, more recently, by NICE. GPs should only be paid for diabetes care if they ensure all nine care processes are delivered to people with diabetes. The threshold at which GPs are remunerated for achievement of treatment standards should also be reviewed and increased at regular intervals.
- c Many people with diabetes currently experience poor levels of care following admission to hospital and, in 2009-10, significant numbers of these people developed avoidable complications owing to medication and other errors.** The Commissioning Outcomes Framework and the NHS Commissioning Board's guidance should make it a requirement for clinical commissioning groups' contracts with providers to specify that diabetes care should be delivered by appropriately trained professionals.
- d There is significant variation in the quality of care received by people with diabetes across the NHS.** The NHS Commissioning Board should state what specific actions it will take to ensure that people with diabetes across England receive recommended standards of care. The NHS Commissioning Board should also: introduce effective systems of governance and accountability to minimise variation and inequality in diabetes care across England; promote adherence to good clinical practice; and ensure that national data are reconciled at regular intervals. Reducing variation will improve outcomes and reduce cost, enabling the NHS to better manage the increased number of people with diabetes in the long term.
- e With access to education and support, many people with diabetes can manage their condition effectively, yet few people with diabetes receive patient education.** The NHS Commissioning Board should work with clinical commissioning groups and providers to ensure that people with diabetes are offered education and support in how best to manage their condition. Improved patient education and awareness of the early signs of complications could reduce admissions to acute and specialist services for people with diabetes.
- f The Department and the NHS lack clarity about how to ensure effectiveness in diabetes services and do not clearly understand the total costs of treating diabetes in the NHS.** The NHS Commissioning Board should ensure that cost data are available to clinical commissioning groups to support them in meeting the recommended standards of care for people with diabetes locally. The NHS Commissioning Board and Monitor (the sector regulator for healthcare in England) should work to develop tariffs to incentivise providers appropriately to maximise achievement of improved outcomes.

# Part One

## NHS services for people with diabetes

**1.1** In 2009-10, there were 2.34 million adults diagnosed with diabetes in England, with a further 760,000 people estimated to have undiagnosed diabetes. Diabetes is a chronic condition where the body does not produce enough insulin to regulate blood glucose levels. Normally, the amount of sugar in the blood is controlled by insulin, a hormone produced by the pancreas. When food is digested and enters the bloodstream, insulin moves any glucose out of the blood and into cells, where it is broken down to produce energy. In people with diabetes, the body cannot break down glucose into energy.

### The two main types of diabetes occur for different reasons

**1.2** There are two main types of diabetes:

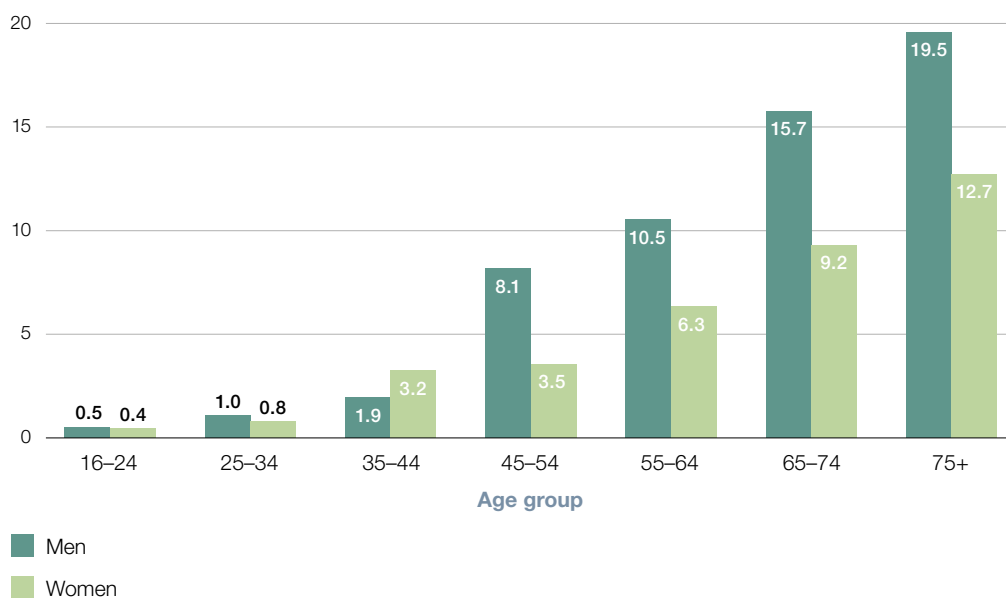
- Type 1 – occurs when the body produces no insulin. People with type 1 diabetes need daily injections of insulin to survive.
- Type 2 – occurs when not enough insulin is produced by the body for it to function properly, or when the body's cells do not react to insulin. People with type 2 diabetes need to adjust their diet and their lifestyle. Some will also need to take tablets or insulin to control their blood glucose level.

**1.3** Type 2 diabetes is far more common than type 1 diabetes, accounting for around 90 per cent of adults with diabetes. The overall likelihood of developing diabetes increases with age (**Figure 1** overleaf) although type 1 diabetes usually develops before the age of 40, often during the teenage years. Type 2 diabetes is more common in people of South Asian, African-Caribbean or Middle Eastern descent. Developing type 2 diabetes is also strongly linked with obesity. For type 1 diabetes there is no association of prevalence with social deprivation. In contrast, type 2 diabetes is strongly associated with social deprivation.

**Figure 1**

Diagnosed prevalence of diabetes by age group, 2009

Percentage of population diagnosed with diabetes



Source: Health Survey for England 2009

## Recommended standards of care have been set for people with diabetes

People with diabetes are at significantly increased risk of serious health problems

**1.4** The overall life expectancy for people with type 1 diabetes is reduced on average by around 20 years and approximately ten years for people with type 2 diabetes.<sup>1</sup> In January 2012, the Department of Health (the Department) estimated that 24,000 of the 75,000 people that die each year with diabetes, die early from causes that could have been avoided through managing their condition better.

**1.5** Diabetes causes damage to nerve cells and blood vessels which has an impact on the cardiovascular system and a number of other parts of the body, such as the feet, kidneys and eyes. Poor diabetes management increases the risk of the early development of diabetes-related complications. For example:

- People with diabetes are up to five times more likely to have heart disease or a stroke than someone without diabetes.<sup>2</sup>
- Diabetes is the single most common cause of end-stage kidney disease.<sup>3</sup>

<sup>1</sup> Diabetes UK, *Diabetes in the UK 2011-12: Key statistics on diabetes*, December 2011.

<sup>2</sup> Available at: [www.nhs.uk/Conditions/Diabetes-type2/Pages/Complications.aspx](http://www.nhs.uk/Conditions/Diabetes-type2/Pages/Complications.aspx)

<sup>3</sup> Diabetes UK, *Diabetes in the UK 2011-12: Key statistics on diabetes*, December 2011.

- Approximately half of the lower limb amputations carried out in England are among people with diabetes.<sup>3</sup>
- Diabetic eye disease is the most common cause of blindness in people of working age.<sup>3</sup>

**1.6** The Department's recommended standards of care are designed to reduce the number of people developing these diabetes-related complications.

**1.7** Following structured education, and with appropriate support, most people with diabetes can manage their condition themselves. However, to do so effectively they require regular clinical checks for the early indications of disease progression, such as raised cholesterol and raised blood glucose levels. If detected and managed early, the risk of developing serious complications, such as blindness and end-stage kidney disease, that require more specialist care, can be reduced.

The Department's recommended standards of care aim to reduce the risk of people with diabetes developing complications

**1.8** In 2001, the Department set out the key interventions, including nine care processes, that people with diabetes should receive annually to monitor treatable risks for diabetic tissue damage and to detect the early damage itself so that treatment can be given to prevent deterioration (**Figure 2** overleaf). These care processes were first published as part of the National Service Framework for Diabetes (the Framework).<sup>4</sup> In 2011, the National Institute for Health and Clinical Excellence (NICE) Quality Standard reinforced the recommendations of the Framework and the need to deliver the nine care processes to people with diabetes.<sup>5</sup>

**1.9** In 2003, the Department created the post of National Clinical Director for Diabetes to give leadership to the implementation of the Framework across the NHS. The current National Clinical Director for Diabetes is a leading diabetologist who works part-time in clinical practice and part-time in her national leadership role. Since 2009, the National Clinical Director has been supported by NHS Diabetes, a service improvement organisation of 16 full-time staff working across England funded through strategic health authority budgets.<sup>6</sup> The Department of Health's diabetes policy team work with NHS Diabetes and the National Clinical Director to oversee NHS delivery of the overall national work programme for diabetes.

<sup>4</sup> Department of Health, *The National Service Framework for Diabetes*, December 2001.

<sup>5</sup> The National Institute for Health and Clinical Excellence (NICE), *Quality Standard for diabetes in adults*, March 2011.

<sup>6</sup> With additional support from a further four part-time members of staff.

**Figure 2**

The nine basic care processes for people with diabetes, to be delivered annually

Care process	Purpose	Primarily delivered by
Micro-albuminuria	A urine test is undertaken to check for protein, a sign of possible kidney problems.	GP practice or community service
Blood pressure	High blood pressure can indicate blockages or obstructions in the arteries, which can cause a variety of complications.	GP practice or community service
Body mass index	Approximate measure of obesity using height and weight. Obesity is a risk factor in developing complications due to diabetes.	GP practice or community service
Cholesterol	A blood test is undertaken to measure levels of fat in the blood. High levels increase the risk of complications developing.	GP practice or community service
Creatinine	A blood test is undertaken to check for waste material carried in the blood and excreted by the kidneys. High levels are a marker for possible kidney disease.	GP practice or community service
Eye screening	Using a specialised digital camera, a photograph of each eye is taken to look for any changes to the retina (the seeing part at the back of the eye) which may require treatment to prevent blindness.	Acute service, community service or private provider
Foot examination	The skin, circulation and nerve supply of the feet are examined to check for numbness, sensation, reflexes and pulses. Early recognition and management of these risk factors can prevent or delay the development of ulcers which can lead to amputations.	Acute service, outpatient podiatry clinic or GP practice
HbA1c <sup>1</sup> level (a marker for blood glucose)	High blood glucose levels can cause damage to blood vessels and increase the risk of diabetes complications developing.	GP practice or community service
Smoking advice	Having diabetes puts people at increased risk of heart disease and stroke. Smoking further increases this risk.	GP practice or community service

**NOTE**

<sup>1</sup> HbA1c is a measure of average blood glucose levels over the last eight to twelve weeks. The amount of glucose that is being carried by the red blood cells in the body is established via a blood test.

Source: National Audit Office



Local NHS organisations have been given freedom to decide how to deliver diabetes services

**1.10** In its 2003 *Delivery Strategy*<sup>7</sup> for the Framework, the Department gave primary care trusts, which have been responsible for commissioning local services on behalf of their local population, freedom to decide how to best deliver diabetes services. Primary care trusts have been overseen by regional strategic health authorities that are accountable to the Department for the delivery of NHS services. GP practices have a key role in delivering care locally, although GP practices do not have to deliver all of the nine basic care processes themselves. GP practices can, for example, use more specialist centres to deliver tests and are responsible for ensuring that people with diabetes are referred for eye screening annually. Even so, it is for GP practices to ensure that people with diabetes receive all nine basic care processes each year in accordance with clinical guidance. The Quality and Outcomes Framework, introduced in 2004 as part of the new GP contract, includes payments for undertaking specified clinical activities and achieving set clinical indicators, some of which are related, but not fully aligned, to the NICE recommended care processes for diabetes (see paragraph 2.3).

**1.11** *The Health and Social Care Act (2012)* sets out planned changes to the structures for commissioning NHS services. The Act devolved many responsibilities and resources for commissioning to local clinical commissioning groups comprising GP practices, doctors, nurses, and other health and social care professionals.

### **The percentage of the population diagnosed with diabetes has more than doubled in 15 years**

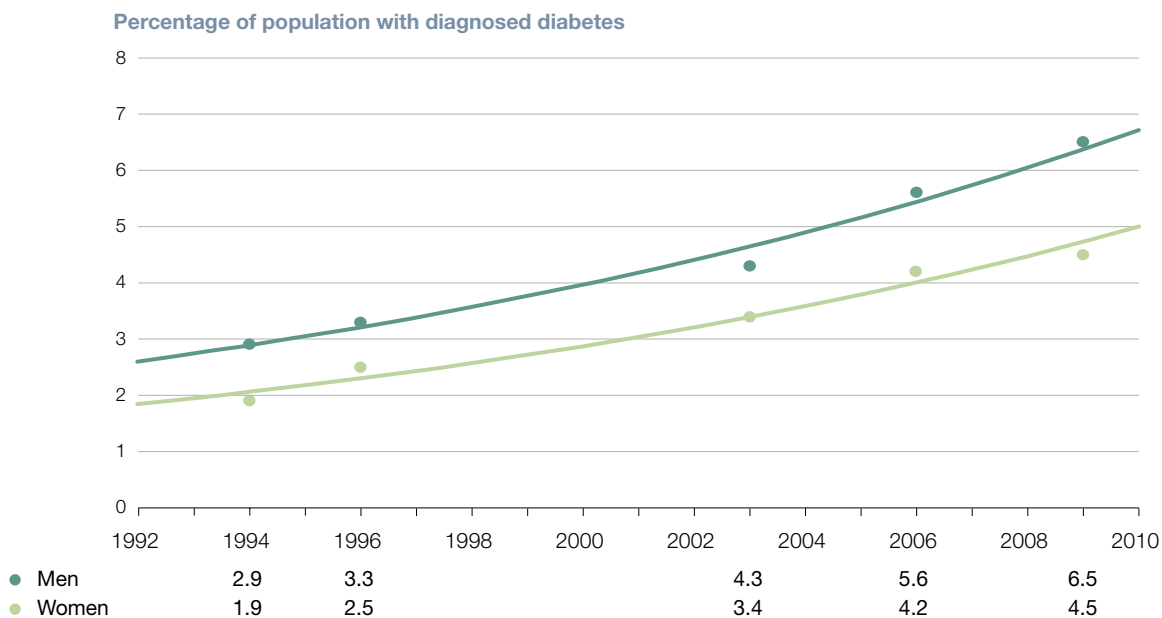
**1.12** The percentage of the population diagnosed with diabetes in England more than doubled between 1994 and 2009 (**Figure 3** overleaf). This presents a significant and growing challenge for the NHS. Among men, the prevalence of diagnosed diabetes increased from 2.9 per cent to 6.5 per cent, while diagnosed prevalence among women increased from 1.9 per cent to 4.5 per cent. Yorkshire and Humber Public Health Observatory (YHPHO),<sup>8</sup> part of the Department's intelligence resource, has made projections about numbers of people with diabetes, based on rising levels of obesity and the changing age and ethnic structure of the population of England. The Observatory estimates that the total number of adults with diabetes (diagnosed and undiagnosed) will increase by around 700,000 from 3.1 million in 2010 to 3.8 million in 2020. The predicted increase in diabetes prevalence is not expected to occur uniformly across England. For example, by 2020, in 12 of the 151 primary care trust areas, the percentage of people with diabetes is expected to reach 10 per cent or more (**Figure 4** on pages 17 and 18).

<sup>7</sup> Department of Health, *National Service Framework for Diabetes: Delivery Strategy*, January 2003.

<sup>8</sup> YHPHO was created in 2004 as one of nine public health observatories in England. YHPHO work on behalf of the Department of Health, in partnership with the NHS, local authorities, researchers and national agencies.

**Figure 3**

Increase in diagnosed diabetes prevalence between 1994 and 2009



**NOTE**

1 Doctor-diagnosed prevalence for people aged 16 and over as covered in the Health Survey for England. The Health Survey for England has not recorded diabetes prevalence at regular intervals since 1994. All available data points are presented and a line of best-fit has been added to illustrate trends.

Source: Health Survey for England for the years 1994 to 2009

**1.13** The Department’s cost data suggest that the cost of treating diabetes has increased from £0.9 billion in 2006-07 to £1.3 billion in 2009-10. The Department accepts that this is likely to be a significant underestimate. Using a range of actual and estimated costs (paragraph 2.23), including the cost of drugs, and inpatient and outpatient care, we estimate the cost of treating diabetes in 2009-10 was at least £3.9 billion.

**Figure 4**

Projected increases in diabetes prevalence by primary care trust area between 2010 and 2020

**Diabetes prevalence 2010 model by primary care trust**

- 10% and over
- 9% to 9.99%
- 8% to 8.99%
- 7% to 7.99%
- Under 7%



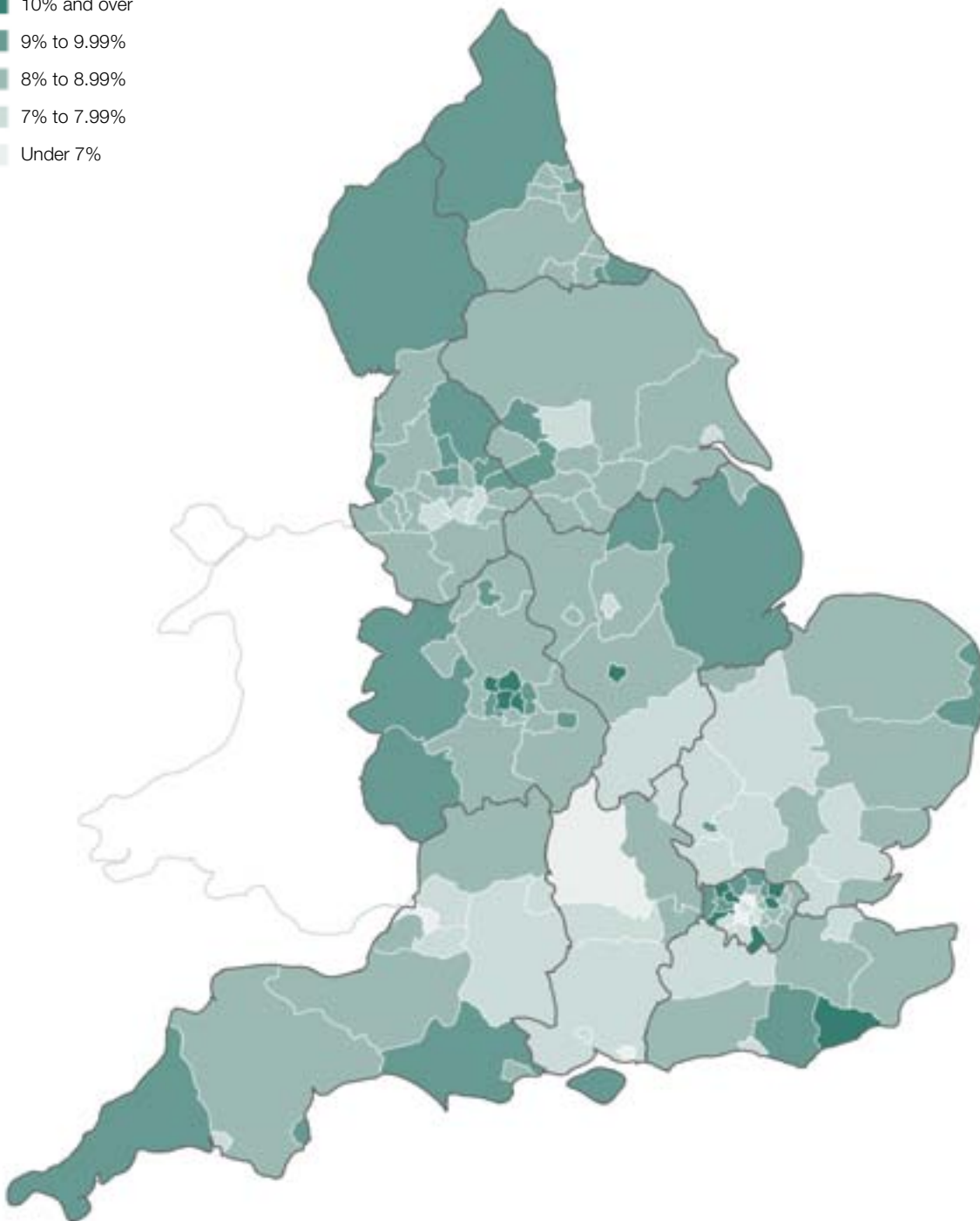
Source: Yorkshire and Humber Public Health Observatory

**Figure 4** *continued*

Projected increases in diabetes prevalence by primary care trust area between 2010 and 2020

**Diabetes prevalence 2020 model by primary care trust**

- 10% and over
- 9% to 9.99%
- 8% to 8.99%
- 7% to 7.99%
- Under 7%



Source: Yorkshire and Humber Public Health Observatory

## Part Two

### NHS performance in delivering recommended standards of care

**2.1** Since 2001, NHS organisations and healthcare professionals involved in providing diabetes care have been expected to provide nine basic, clinically accepted, care processes to every person with diabetes annually (see Figure 2, Part One). Providing these care processes was expected to improve health outcomes for people with diabetes by reducing early complications, raising service quality and reducing service variations across England. This part of the report examines:

- NHS performance in delivering the nine care processes recommended by the National Service Framework (the Framework), and now the National Institute for Health and Clinical Excellence (NICE);
- the impact on patient outcomes where all nine care processes are not delivered; and
- the cost to the NHS of treating avoidable diabetic complications.

**2.2** To measure the performance of the NHS in delivering the recommended care processes, the Department established the *National Diabetes Audit*.<sup>9</sup> The audit currently collects data on the care delivered to 1.9 million people with diabetes from general practices. We have used the *National Diabetes Audit* as our primary source of data because it measures the delivery of diabetes care in alignment with NICE guidelines, and is recognised by the Department and Primary Care Information Service as the authoritative source of information on the delivery of diabetes care.

**2.3** During the course of our audit the Department identified differences in reported performance in delivering care processes between the *National Diabetes Audit* and the Quality and Outcomes Framework; the system through which GP practices are rewarded for undertaking specified clinical activities and achieving specific treatment standards, some of which are related to the NICE recommended care processes for diabetes. Both the *National Diabetes Audit* and the Framework extract data from GP practices' patient records, but discrepancies may arise as a result of differences in the purpose, scope, and recording of Quality and Outcomes Framework indicators compared to the *National Diabetes Audit*. The Department is seeking to establish the causes of differences in reported performance and expects to report the outcome of its investigation by the end of September.

## People with diabetes are not receiving the Department's recommended standard of care

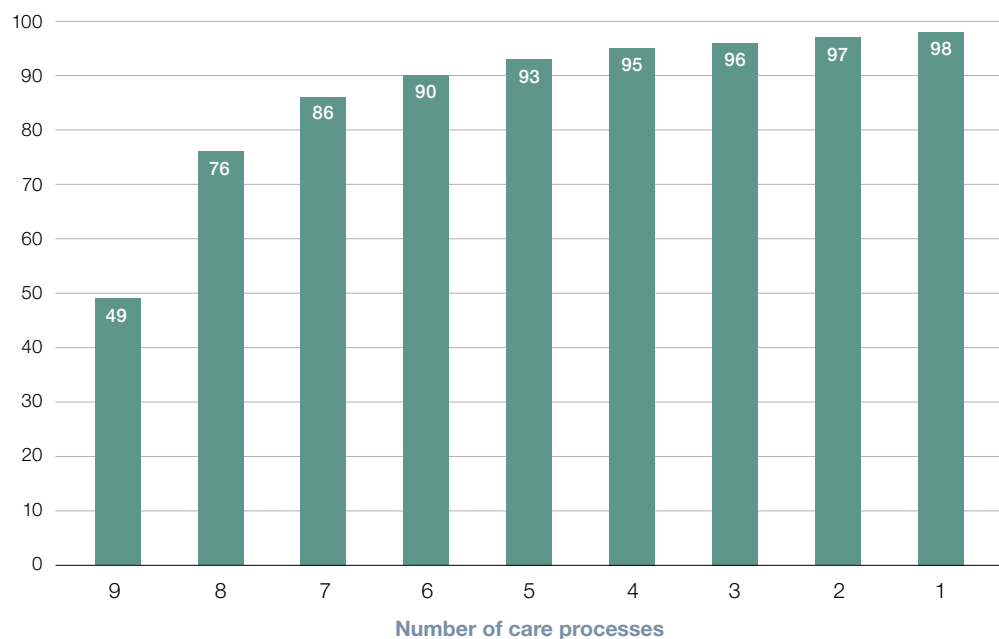
Only half of people with diabetes are receiving care that could reduce their risk of developing diabetes-related complications

**2.4** In 2009-10, the *National Diabetes Audit* found that 90 per cent of people with diabetes received six of the recommended care processes (**Figure 5**), but only 49 per cent were assessed for the early signs of all complications.

**Figure 5**

Percentage of registered patients receiving the nine care processes

Percentage of patients received



**NOTE**

1 Based on *National Diabetes Audit* data for 1.9 million people with diabetes collected from general practices.

Source: National Audit Office analysis of the *National Diabetes Audit*, 2009-10

**2.5** The processes that are most frequently not completed are those that check for the early signs that could prevent blindness, amputation and end-stage kidney disease, and that reduce peoples' quality of life. These complications also represent significant costs for the NHS. Three of the most commonly completed processes, as recorded in the *National Diabetes Audit*,<sup>10</sup> are for blood pressure, levels of blood glucose (measured using HbA1c) and cholesterol. These three processes are received by 94 per cent, 91 per cent and 90 per cent of people with diabetes, respectively. However, there are large numbers of people with diabetes being treated by the NHS. As a result, even a small percentage of patients failing to receive a care process leaves large numbers of patients going unchecked for the early signs of preventable complications. For example, in 2009-10, 6 per cent of people with diabetes did not have their blood pressure checked, which equals some 140,000 people unchecked.

**2.6** In 2009-10, there was significant variation in providing basic care processes across primary care trust areas. The proportion of people with diabetes receiving all nine basic care processes ranged from less than 10 per cent in two primary care trusts up to no more than 69 per cent in any primary care trust (**Figure 6** overleaf).<sup>11</sup> Some areas of England will have significantly more patients at risk of diabetes than others, but the Department cannot fully explain the variation by differences in local populations, socio-economic factors or local spending on diabetes services. For example, the likelihood of all nine care processes being received is not affected by social deprivation (a common cause of health inequalities).<sup>12</sup> It is therefore likely that diabetes services are being affected by how local services are organised and managed, and their effectiveness.

Local diabetes services are delivered in different ways, but there is a limited understanding of how effective different approaches are in delivering the recommended standards of care

**2.7** During our visits to ten primary care trust areas we identified little evidence of the NHS assessing how effectively diabetes services are being delivered or whether they could be delivered more efficiently using different service delivery models. The primary care trusts we visited had taken a variety of different approaches to delivering diabetes services. Some were led by GP practices, some by hospital and specialist services, and some by intermediate community services. However, when speaking to commissioners of diabetes services it was not always clear what had led to the current design of the service. NHS Diabetes estimates that more than half of its contacts in primary care trusts have left their roles since 2010, which has had a significant impact on local knowledge of diabetes services.

<sup>10</sup> NHS Information Centre, *National Diabetes Audit 2009-10*, 2011.

<sup>11</sup> Detailed results for each primary care trust in England can be found within Appendix Two.

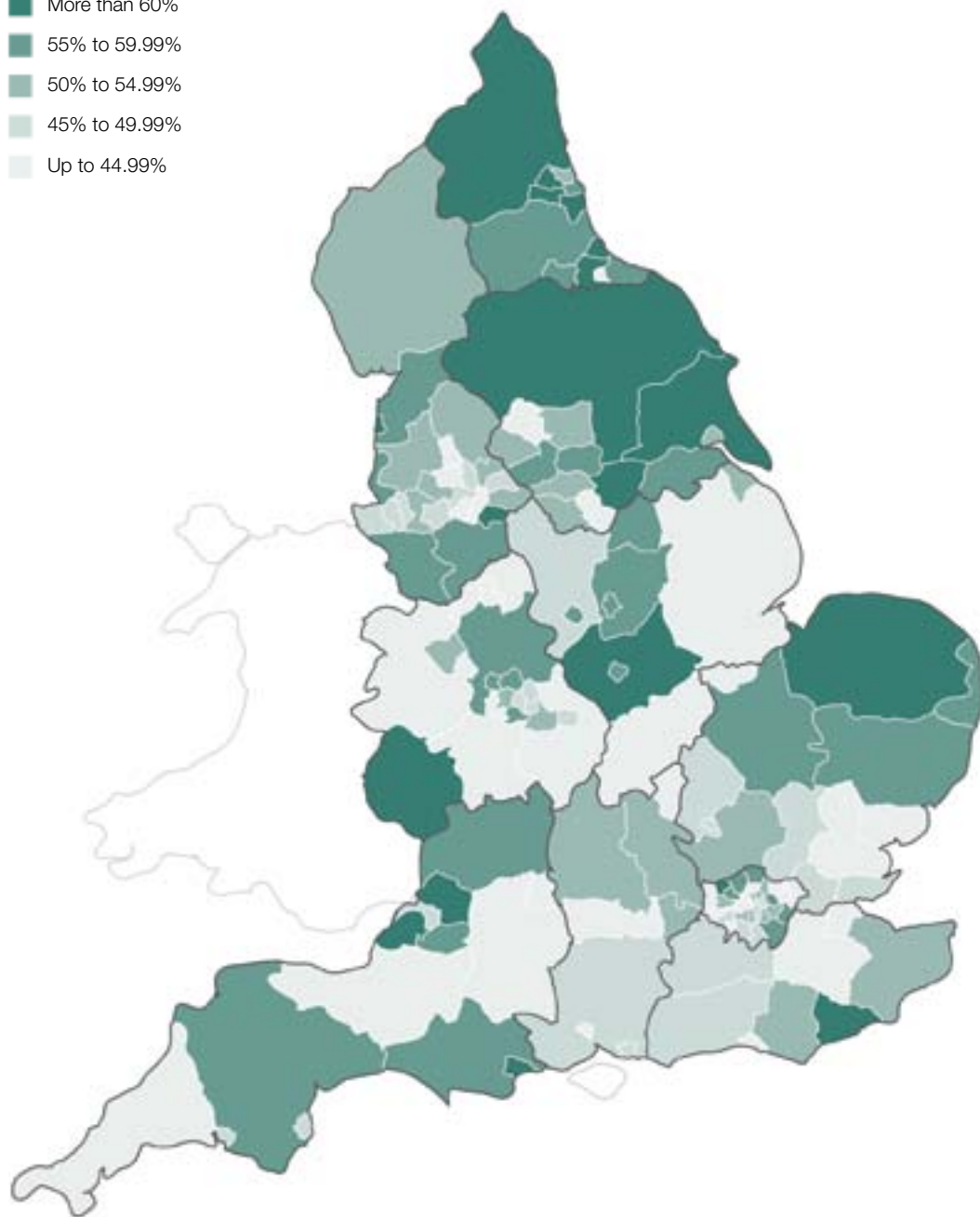
<sup>12</sup> Comptroller and Auditor General, *Tackling inequalities in life expectancy in areas with the worst health and deprivation*, Session 2010-11, HC 186, National Audit Office, July 2010.

**Figure 6**

Percentage of people with diabetes who received all nine basic care processes in 2009-10, by primary care trust area

**Percentage**

- More than 60%
- 55% to 59.99%
- 50% to 54.99%
- 45% to 49.99%
- Up to 44.99%



Source: National Diabetes Audit, 2009-10



**2.8** In some primary care trusts, decisions regarding local service design appeared to be as a result of historic practices. In other instances they were driven by clinicians with a specialist interest in diabetes care. Limited understanding of the costs of diabetes (paragraphs 2.18-2.22) means there is a lack of clarity about the most effective ways to deliver diabetes services. Often the decision to deliver diabetes services through the current chosen structure had not been assessed against alternative ways of working.

### **Failure to prevent avoidable diabetic complications leads to poor patient outcomes and increased costs**

Less than one in five people with diabetes are achieving recommended treatment standards that reduce their risk of developing diabetes-related complications

**2.9** The risk of developing diabetic complications can be minimised by early detection and management of high levels of blood glucose (measured using HbA1c), blood pressure and cholesterol. Our analysis of the *National Diabetes Audit* found that, in 2009-10, 16 per cent of people with diabetes achieved all three of the diabetes-related treatment standards. Therefore, 84 per cent of people with diabetes are at a higher risk of developing future complications through poor control of these health indicators. We also found that 15 per cent of people with diabetes did not achieve any of the three treatment standards in 2009-10 (**Figure 7** overleaf).

**2.10** The percentage of people with diabetes achieving individual treatment standards has not increased significantly over the last two years as recorded by the *National Diabetes Audit*.<sup>13</sup> For example, the percentage of patients achieving blood pressure and blood glucose standards increased by less than 1 per cent between 2008-09 and 2009-10 to 51 per cent and 63 per cent respectively. Similarly, the percentage of people achieving recommended cholesterol levels increased by just over 1 per cent between 2008-09 and 2009-10 to 40 per cent.<sup>14</sup>

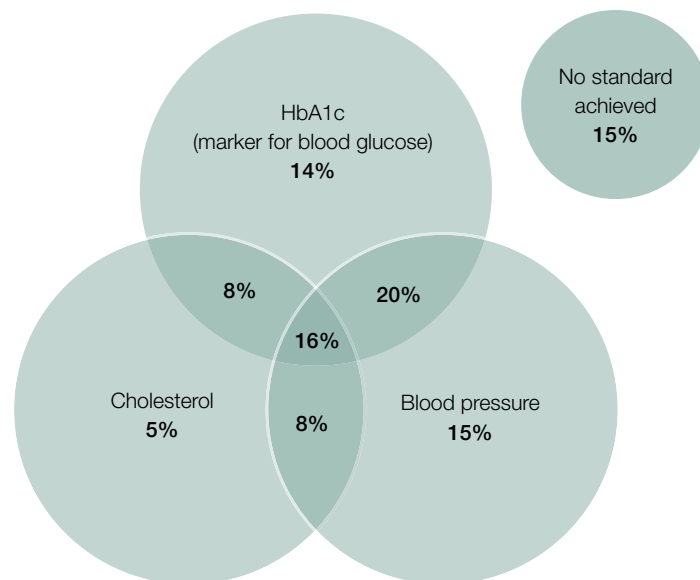
**2.11** There have been significant variations in performance across primary care trusts. Achievement of treatment standards and rates of complications in people with diabetes cannot be fully explained by patient demographic factors, such as age and levels of social deprivation. For example, while achievement of the cholesterol standard was significantly more likely to be achieved in people aged over 55 than younger people with diabetes, this does not fully explain the degree of variation across primary care trusts.

<sup>13</sup> More historic trend analysis cannot be undertaken as clinically recommended standards for blood pressure and cholesterol changed in 2008.

<sup>14</sup> In order to complete historic analysis over a two year period (2008-2010) we used publicly available *National Diabetes Audit* data on achievement of treatment standards. These data use the following thresholds for achievement: 1) The NICE recommended blood pressure standard of 140/80 with a more stringent standard of 130/80 for those with evidence of eye, kidney or vascular disease, 2) The NICE recommended HbA1c standard of 7.5 per cent or less and, 3) The NICE cholesterol standard of <4.0 mmol/l.

**Figure 7**

Achievement of treatment standards for people with diabetes recorded by the 2009-10 *National Diabetes Audit*

**NOTES**

- 1 The figure above uses the following thresholds for achievement of treatment standards: 1) The NICE recommended blood pressure standard of 140/80, 2) The NICE recommended HbA1c of 7.5 per cent or less, and 3) The NICE cholesterol standard of <4.0mmol/l.
- 2 Percentages have been rounded upwards for the purposes of presentation and sum to 101 per cent.

Source: National Audit Office analysis of National Diabetes Audit Data

Absolute numbers of diabetes-related complications have increased, though rates of some have stabilised

**2.12** The rates of diabetes-related complications, such as kidney disease, amputation and eye disease, are used as a measure of the final outcomes of care. With the exception of diabetic ketoacidosis,<sup>15</sup> the complications associated with diabetes can take a number of years to develop, and therefore indicate the quality of long-term care. Diabetes-related complications lead to complex and costly treatment and significantly impact on quality of life.

<sup>15</sup> Diabetic ketoacidosis is an extreme shortage of insulin in the body, leading to vomiting, dehydration, shortage of breath and occasionally a coma. Without medical treatment, diabetic ketoacidosis can lead to death.

**2.13** The prevalence of the majority of diabetes-related complications, including heart failure, diabetic eye disease and amputation have remained relatively stable since 2003-04. In contrast, the rates of diabetic ketoacidosis in people with type 1 diabetes, and end-stage kidney disease in both those with type 1 and type 2 diabetes, have increased.<sup>16</sup> The increasing prevalence of diabetes means, however, that the absolute numbers of people with complications is continuing to increase even among complications with steady overall rates. Owing to the number of people with diabetes, even small percentages of patients experiencing complications represents a significant volume of NHS activity (**Figure 8**).

### People with diabetes account for more inpatient activity than other patients and patterns of care vary across primary care trusts

**2.14** The Department's analysis has identified that people with diabetes are more likely to be admitted to hospital overnight than treated as a day case. In 2009-10, there were 40,000 more overnight admissions for elective procedures that would be performed as day cases in people without diabetes. Additionally, of the 62,000 hospital admissions where diabetes was recorded as the primary cause of the admission, some 63 per cent (39,000 people) were admitted as an emergency.<sup>17</sup>

## Figure 8

Estimated numbers of complications recorded by the 2009-10  
*National Diabetes Audit*

Complication	Percentage of people in England recording complication	Percentage of people with diabetes recording complication	Number of people with diabetes with complication
Angina	0.64	3.13	60,500
Cardiac failure	0.39	1.58	30,400
Stroke	0.22	0.69	13,300
Myocardial Infarction (heart attack)	0.16	0.60	11,600
Ketoacidosis	0.02	0.48	9,200
Retinopathy treatment	0.03	0.42	8,000
End-stage kidney disease	0.08	0.38	7,400
Minor amputation	0.01	0.13	2,600
Major amputation	0.01	0.07	1,300

Source: *National Diabetes Audit data and NHS Information Centre*

16 NHS Information Centre, *National Diabetes Audit 2009-10*, 2011.

17 Hospital Episode Statistics Online, available at [www.hesonline.nhs.uk](http://www.hesonline.nhs.uk), accessed 15 May 2012.

**2.15** When admitted to hospital, people with diabetes typically stay for a day longer than people without diabetes. In 2009-10, inpatients with diabetes spent 795,000 more nights in hospital than they would have if their average length of stay was the same as for people admitted to hospital without diabetes.<sup>18</sup> In hospital, people with diabetes may also experience avoidable complications owing to medication and other errors, lack of patient involvement in managing their condition and lack of access to specialist inpatient diabetes services. For example, a 2010 audit found that 37 per cent of inpatients with diabetes experienced at least one medication error and 18 per cent of patients with medication errors developed severe hypoglycaemia<sup>19</sup> compared with 8 per cent of those without medication errors.<sup>20</sup>

**2.16** Following discharge from hospital, people with diabetes are more likely to be readmitted as an emergency, when compared with other discharged patients without diabetes.<sup>21</sup> In 2009-10, there were over 100,000 emergency readmissions within 28 days for people with diabetes discharged from hospital. This is over 37,000 more than expected when compared with people discharged from hospital who did not have diabetes.<sup>22</sup>

**2.17** There is significant variation in emergency readmission rates across primary care trusts, and rates of readmissions amongst people with diabetes across all primary care trusts were higher than those for discharged patients without diabetes. In 2009-10, emergency readmissions for people with diabetes were between 16 per cent and 100 per cent higher than for other discharged patients across primary care trusts.<sup>22</sup>

## The cost of diabetes to the NHS is significant and growing

Establishing the cost of diabetes to the NHS is complex

**2.18** It is difficult to disentangle the costs of diabetes from those of its complications. When NHS activity is coded for diagnosis, diabetes is not usually listed as the patient's primary condition. For example, a person with diabetes may develop coronary heart disease because poorly controlled blood glucose, blood pressure or blood cholesterol levels have led to the narrowing of blood vessels that supply the heart. When this person is admitted to hospital, they are more likely to be coded as having heart disease than diabetes. Around 6 per cent of patients recorded as having diabetes have a primary diagnosis of diabetes, indicating that diabetes is frequently coded as a co-morbidity (additional disorder) of other conditions (**Figure 9**).

18 NHS Diabetes, *Inpatient Care for People with Diabetes: The Economic Case for Change*, November 2011.

19 Hypoglycaemia is an extreme low in blood glucose levels, which can cause shakiness and palpitations. If not treated quickly, hypoglycaemia can lead to fits and unconsciousness.

20 NHS Diabetes, *The National Diabetes Inpatient Audit 2010*, 2011.

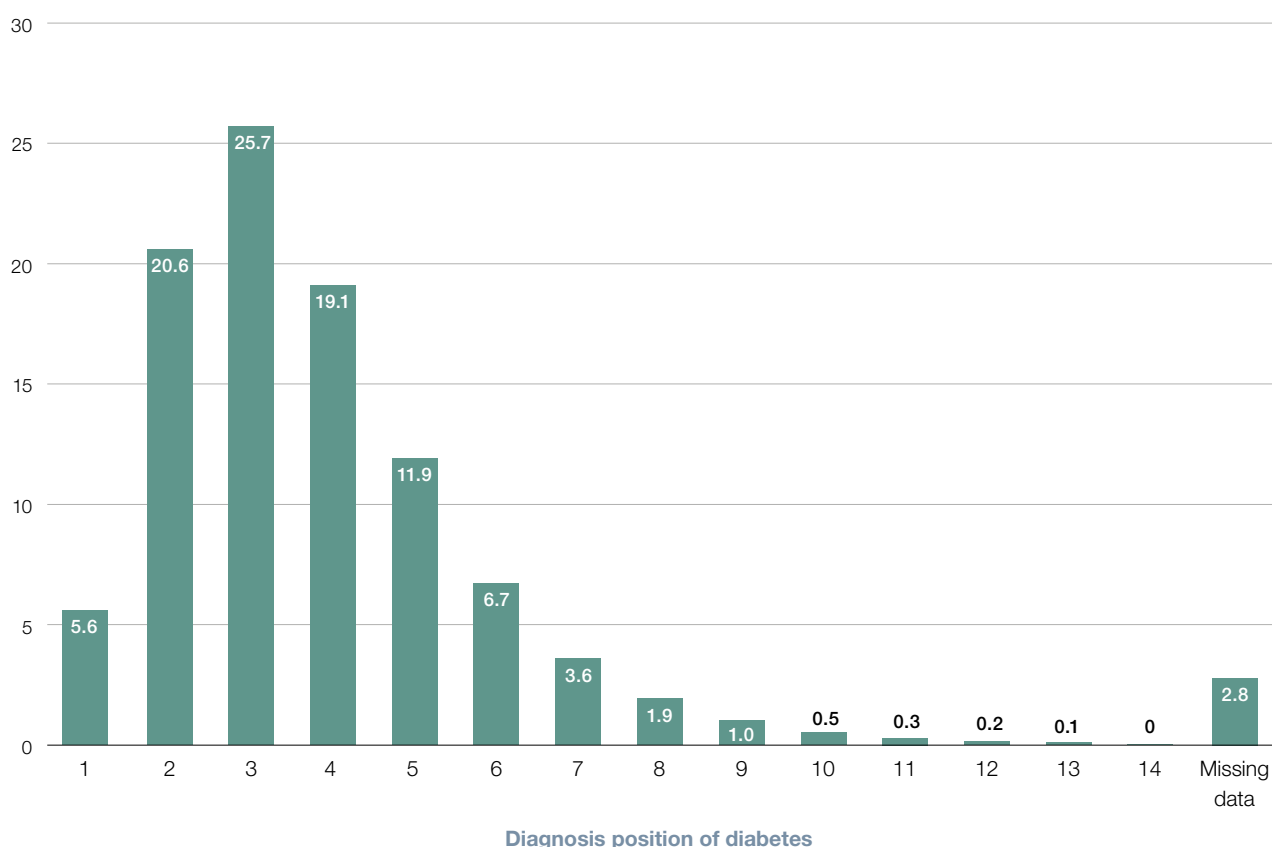
21 NHS Diabetes, *Inpatient Care for People with Diabetes: The Economic Case for Change*, November 2011.

22 Yorkshire and Humber Public Health Observatory, *Variation in Inpatient Activity: Diabetes*, May 2011.

**Figure 9**

Position of diabetes code for admitted patients, 2009-10

Percentage of patients



Source: National Audit Office analysis of Hospital Episodes Statistics

Spending on diabetes services has increased but the Department's cost data are incomplete

**2.19** Since 2003-04, the Department has collected cost data from primary care trusts to map their spending of 23 programmes of care, one of which is diabetes. These data, known as programme budgeting data, are intended to inform commissioning decisions by making primary care trusts question their spending and consider the most efficient and effective way to provide services. Based on the Department's data, overall spending on diabetes services increased from £0.9 billion in 2006-07 to £1.3 billion in 2009-10.

**2.20** Our previous studies, however, have shown a lack of good quality cost information for primary care and community services, where the majority of diabetes care is provided, within programme budgeting data. This means that the Department's data are likely to significantly underestimate the true cost of diabetes services. Our analysis also identified two areas for concern:

- Reported spending per person with diabetes varies widely from year to year for individual primary care trusts, which suggests that spending on diabetes is not reported consistently. For example, our analysis showed that between 2008-09 and 2009-10, some primary care trusts had almost doubled their spending per person with diabetes, while others had reduced their spending by 30 per cent.
- There is wide variation in the proportion of recorded diabetes-related spending between primary and secondary care across primary care trusts. Programme budgeting data reports that for some primary care trusts all of their spending on diabetes occurs in either primary care or secondary care. Our analysis of activity and prescribing data, found that this record of spending for those primary care trusts was not correct. This demonstrates further the current limitations of the Department's cost data in providing an accurate account of spending on diabetes.

Spending on diabetes drugs by primary care trusts varies considerably and is not associated with patient outcomes

**2.21** Part of the increase in spending on diabetes has been from rising spending on drugs for treating the condition. Prescribing for diabetes is now the single largest area of primary care pharmaceutical spending for the NHS and represented 7.7 per cent of the total cost of prescribing in primary care in 2009-10. Spending on diabetes drugs increased from £458.6 million in 2004-05 to £649.2 million in 2009-10, a rise of 42 per cent. This is compared with a growth of 6 per cent for all primary care prescribing over the same period. These costs include only those drugs prescribed specifically for diabetes and not drugs prescribed for treating its complications, such as cholesterol-lowering statins. This means that spending on drugs for people with diabetes is likely to be higher.<sup>23</sup>

**2.22** We found that there is no correlation between primary care trust spending on diabetes drugs and the percentage of people with diabetes meeting treatment standards to control blood glucose, blood pressure and cholesterol levels. In 2009-10, annual spending on insulin items to lower blood glucose levels varied from £78.84 to £175.88 per adult with diabetes between primary care trusts. Large variations were also present in spending on blood glucose testing items, and non-insulin and anti-diabetic items (**Figure 10**). These variations were also present in the previous year, indicating that they are persistent and not an isolated occurrence. This suggests that for a number of primary care trusts, reducing spending on diabetes drugs could be achieved without leading to poorer health outcomes. It is, however, for primary care trusts to review clinical audit evidence to establish whether their level of expenditure is appropriate and, ultimately, GPs will have to make decisions about what is clinically appropriate for individual patients on a case-by-case basis.

### Figure 10

Variation in net ingredient cost of diabetes drugs prescribed in primary care

Indicator	Variation in cost between primary care trusts per adult diagnosed with diabetes (£) <sup>1</sup>	Total cost of drugs <sup>2</sup> (£m)
Net ingredient cost of insulin items per adult with diabetes	78.84 to 175.88	300
Net ingredient cost of non-insulin anti-diabetic items per adult with diabetes	64.71 to 179.69	200
Net ingredient cost of blood testing items per adult with diabetes	42.60 to 86.76	150

#### NOTES

- 1 The bottom 2.5 per cent and top 2.5 per cent of primary care trusts have been excluded to prevent significant outlying primary care trusts from overstating the true extent of variation across the NHS.
- 2 The total costs of diabetes drugs have been rounded upwards for the purposes of presentation.

Source: Yorkshire and Humber Public Health Observatory

We estimate that the cost of treating people with diabetes in 2009-10 was at least £3.9 billion

**2.23** Using a range of different data, we estimate that NHS expenditure on diabetes services in 2009-10 was at least £3.9 billion (**Figure 11**), three times the Department's estimate.<sup>24</sup>

**Figure 11**  
Estimated NHS spending on diabetes, 2009-10

Area of spending	Cost (£m)	Notes
Inpatient care	2,200	The cost of all inpatient activity that contains a diagnosis of diabetes was estimated to be between £2.1 billion and £2.3 billion in 2009-10. Of this sum, £573 million to £686 million is estimated to be excess spending on diabetes over that spent on a population of the same age and gender without the condition.
Outpatient care	100	Based on a unit cost applied to outpatient attendances for a diabetic medicine speciality. This is likely to represent a minimum cost as it does not include attendances by patients with diabetes for non-diabetic medicine specialities such as ophthalmology or podiatry.
Ambulance service costs	17	Based on a unit cost applied to the estimated number of cases of severe hypoglycaemia requiring an emergency attendance in 2009-10.
Primary care prescribing	649	Covers only drugs prescribed specifically for diabetes in 2009-10, not its complications.
Annual reviews in primary care	840	Estimate of primary care treatment costs for a person with diabetes using standardised cost ratios. We estimate that £232 million is excess spending on diabetes over that spent on a population of the same age and gender without the condition.
Quality and Outcomes Framework	109	Payments made to GPs against diabetes-related Quality and Outcomes Framework indicators in 2009-10.
Retinal screening	53	Includes central programme costs and local screening costs.
Costs of the Department's diabetes team	3	Including National Clinical Director, diabetes policy team and NHS Diabetes.
Structured education	2	Estimate based on a unit cost applied to the number of people with diabetes recorded as having received patient education in the <i>National Diabetes Audit</i> . Excludes set-up costs.
<b>Estimated total cost</b>	<b>3,973</b>	

Source: National Audit Office

<sup>24</sup> The figure of £3.9 billion is likely to be an underestimate and does not include the cost of social care for people with diabetes. The figure also excludes wider economic costs associated with loss of earnings.



## Part Three

### The Department's effectiveness in managing and improving performance

**3.1** Part Two of this report established that recommended standards of diabetes care are not being delivered to half of people with diabetes and that significant variation exists in the quality of diabetes services across the NHS. To support the National Service Framework (the Framework), the Department published a supporting *Delivery Strategy* in 2003. This part of the report looks at the interventions the Department has made to support local improvements in diabetes care, including:

- incentives to health professionals to deliver the care processes via payment frameworks linked to activity and outcomes;
- developing a national body of evidence to support commissioning, planning and monitoring of diabetes services across the NHS; and
- providing national leadership and support for implementing the Framework locally, by appointing a National Clinical Director for Diabetes.

**3.2** This part also examines how improving how the nine basic care processes are delivered could lead to better outcomes for patients and reduced costs for the NHS.

#### **The Department has sought to incentivise improvements in care and outcomes for people with diabetes**

The current remuneration framework for GP practices is failing to drive sustained improvements in the delivery of all aspects of the recommended standards of care

**3.3** GP practices are paid, through the Quality and Outcomes Framework, by achieving points, based on the percentage of patients at their practice receiving recommended care and achieving standards for specific clinical indicators to improve health outcomes. The Quality and Outcomes Framework includes indicators related to:

- each of the basic nine care processes; and
- intermediate outcomes, such as achieving clinically recommended levels of blood glucose (measured using HbA1c), cholesterol and blood pressure, linked to the development of diabetes-related complications.

**3.4** There are, however, shortcomings in how the Quality and Outcomes Framework incentivises GP practices, including how:

- the framework gives points for providing individual care processes rather than completing all nine of those recommended; and
- the framework does not incentivise GP practices to exceed upper thresholds of achievement. For example, GP practices receive payment where 40 per cent of patients meet blood pressure standards, but receive no additional payment if more than 60 per cent of patients reach the standard (**Figure 12**).

**Figure 12**

Achievement of diabetes outcome indicators under the Quality and Outcomes Framework, 2009-10

Indicator	Points	Payment stages (%)	Patients achieving outcome indicator (%)
<b>Health outcomes</b>			
DM 23. The percentage of patients with diabetes in whom the last HbA1c is 7 or less (or equivalent test/reference range depending on local laboratory) in the previous 15 months	17	40-50	53.8
DM 24. The percentage of patients with diabetes in whom the last HbA1c is 8 or less (or equivalent test/reference range depending on local laboratory) in the previous 15 months	8	40-70	77.4
DM 25. The percentage of patients with diabetes in whom the last HbA1c is 9 or less (or equivalent test/reference range depending on local laboratory) in the previous 15 months	10	40-90	88.0
DM 12. The percentage of patients with diabetes in whom the last blood pressure is 145/85 or less	18	40-60	80.6
DM 17. The percentage of patients with diabetes whose last measured total cholesterol within the previous 15 months is 5mmol/l or less	6	40-70	83.0

Source: *Quality and Outcomes Framework*

**3.5** Although there were annual increases in the percentage of patients achieving the recommended intermediate health outcomes under the Quality and Outcomes Framework from 2004-05 to 2006-07, achievement has since plateaued. For example, between 2006-07 and 2009-10, achievement of one blood pressure standard increased by 1.9 per cent, which suggests that the initial effect of the incentive has reduced.

The Department's centrally coordinated programme for diabetic retinopathy screening assesses three-quarters of people with diabetes annually but does not monitor patient outcomes

**3.6** Outside of the Quality and Outcomes Framework, the Department introduced a national screening programme for diabetic retinopathy<sup>25</sup> in 2003 (the Programme). The Programme aims to reduce the prevalence of blindness through early detection and treatment of diabetic retinopathy. Diabetic retinopathy is the leading cause of sight loss in the working age population. The Department expects that the Programme can reduce the annual incidence of blindness by at least a third, with some 400 people being saved from sight loss annually. To support the Programme the Department funded primary care trusts to purchase digital cameras and related equipment for retinal screening. Between 2003 and 2008, primary care trusts in England implemented 91 local programmes.

**3.7** In 2003, the Department set a national target for diabetic eye screening. The target required primary care trusts to offer a minimum of 80 per cent of people with diabetes, eye screening for diabetic retinopathy, by the end of 2006. The target also specified that the percentage of people being offered screening should rise to 100 per cent by the end of 2007. In 2010-11, of the 2,465,899 people identified with diabetes on GP practice registers, 92 per cent (2,256,648 people) were offered eye screening. Of the 2,256,648 people offered screening, 79 per cent (1,789,701 people) were screened for the early warning signs of diabetic retinopathy.

**3.8** Increases in the percentage of people with diabetes screened have been achieved against the increasing prevalence of diabetes. For example, between 2004-05 and 2010-11, the number of people with diabetes identified on GP practice registers increased from around 1.8 million to 2.4 million. Comparative data across regional programmes for patient outcomes, such as the number of people referred for treatment following screening, or those with diabetes who are registered blind, is not available. This has prevented any assessment of the impact of the Programme since its implementation was completed in 2008.

<sup>25</sup> Diabetic retinopathy describes damage to blood vessels in the eye which can damage the retina and cause sight loss.

## The Department has acted to improve information to support NHS commissioners

**3.9** High-quality information supports better decision-making and more effective assessment of performance. Since introducing the Framework in 2001, the Department has supported actions that have improved understanding of the performance of diabetes services and the quality of care received by people with diabetes:

- Since 2004, the *National Diabetes Audit* has sought to support the implementation of the Framework by providing NHS organisations with information to compare processes and outcomes of care, share good practice according to National Institute for Health and Clinical Excellence (NICE) guidance, and identify gaps in services for people with diabetes. The 2009-10 audit collected information on 1.9 million of the 2.3 million people diagnosed with diabetes in England.
- In 2009, the National Clinical Director for Diabetes and the Department established the National Diabetes Information Service to support commissioners and providers in delivering diabetes services. The service provides a range of tools, guidance and data sets on specific elements of diabetes care, such as the extent to which diabetes impacts on levels of inpatient activity.

Performance information is not effectively used by commissioners to assess quality and improve diabetes care

**3.10** Through a diabetes information strategy, the Department has supported the development of core datasets by the National Diabetes Information Service to support those commissioning, planning and monitoring diabetes services. The Department envisaged that comparative information would be used locally to compare and improve performance of diabetes services. While there is now a better national understanding of the implementation of the Framework across the NHS, commissioners in the primary care trusts we visited had made limited use of this information locally. For example, there was no detailed awareness of performance in the *National Diabetes Audit*, even though a tool (known as Performance Indicator Analysis Online, or PIANO) has been developed specifically for the NHS to access these data. Also, the relative performance of others nationally was not a major consideration in local performance monitoring or service improvement plans. Where service evaluation had been undertaken, there was a focus on comparing against the performance of neighbouring primary care trusts, rather than comparable peers or national averages.

**3.11** We found that commissioners regularly used data from the Quality and Outcomes Framework as their primary, and sometimes sole, source of performance monitoring data. Commissioners noted that some Quality and Outcomes Framework data are made available to them as management data on a monthly basis, rather than annually and a year after the end of the previous financial year; as is the case with the *National Diabetes Audit*. Quality and Outcomes Framework data are also familiar to GPs and are therefore used by commissioners during any performance management discussions with practices. Some primary care trusts we visited questioned the validity of the data in the *National Diabetes Audit*. Those trusts suggested that annual improvements in the percentage of people with diabetes receiving the nine basic care processes were likely to reflect better data provision rather than only genuine service improvements.

### **The Department has attempted to provide national leadership to support local delivery of the Framework**

The Department appointed a National Clinical Director to encourage improvement in diabetes services but the National Clinical Director has no power to direct local NHS organisations

**3.12** The National Clinical Director and NHS Diabetes have developed a national body of evidence to support those commissioning, planning, managing and monitoring diabetes services. They have also led on initiatives to improve the commissioning of diabetes services and the measurement of micro-albuminuria (one of the care processes, which screens for kidney problems). However, the Department relies on NHS organisations and staff being willing to refer to this evidence, or to listen and engage with the advice and support the National Clinical Director and NHS Diabetes offer. Neither the National Clinical Director nor NHS Diabetes have the power to direct NHS organisations. For example, in early 2012, NHS Diabetes wrote to the 20 worst performing primary care trusts, measured by the number of deaths directly caused by diabetes. NHS Diabetes offered the trusts assistance in examining the causes of their poor performance. Three primary care trusts responded to this offer of assistance with only one receiving practical support.

**3.13** Our visits to ten primary care trusts across the NHS suggest that the roles of the National Clinical Director and NHS Diabetes are not well understood. We also found little evidence that primary care trusts' decisions on how to deliver diabetes services in those areas we visited had been influenced by the work of NHS Diabetes. NHS Diabetes estimate that more than half of their contacts in primary care trusts have left their roles since 2010, and that this has had a significant impact on awareness of the support they offer.

NHS commissioners have not been held to account for poor performance against delivery of the recommended standards of care

**3.14** In its 2003 *Delivery Strategy* for the Framework, the Department expected primary care trusts to set themselves challenging and measurable targets for improvement. The targets would be costed and resourced, owned and agreed locally, and demonstrate a clear path for all standards of diabetic care to be provided by 2013. Through their monitoring of primary care trust activity, strategic health authorities were expected to be held accountable to the Department for ensuring consistent progress towards achieving the Framework's aims. In the event, other performance priorities (such as the achievement of reductions in elective care waits and the eradication of financial deficits) were given precedence.

**3.15** Between 2006-07 and 2009-10, the percentage of people with diabetes receiving all nine recommended care processes increased from 36 per cent to 49 per cent. Completion rates increased for all individual care processes except smoking advice, which decreased by 1 per cent. While they remain the least often completed tests, the largest increases were for those processes that check for the early signs of complications that could lead to blindness (10 per cent), amputation (9 per cent) and end-stage kidney disease (11 per cent). Completion of the remaining care processes increased by between 1 and 4 per cent.

**3.16** Our analysis of *National Diabetes Audit* data, however, found that while most primary care trusts improved during this period, the extent of improvement was highly variable. Some primary care trusts improved from a very low starting point, while others improved only a small amount from a higher starting point. No primary care trust achieved the aim of delivering all nine basic care processes to all people with diabetes, with the highest performing trust achieving a figure of 69 per cent (**Figure 13**). During our visits, we found that commissioners were not being held to account by strategic health authorities for local performance in delivering the recommended standards of care.

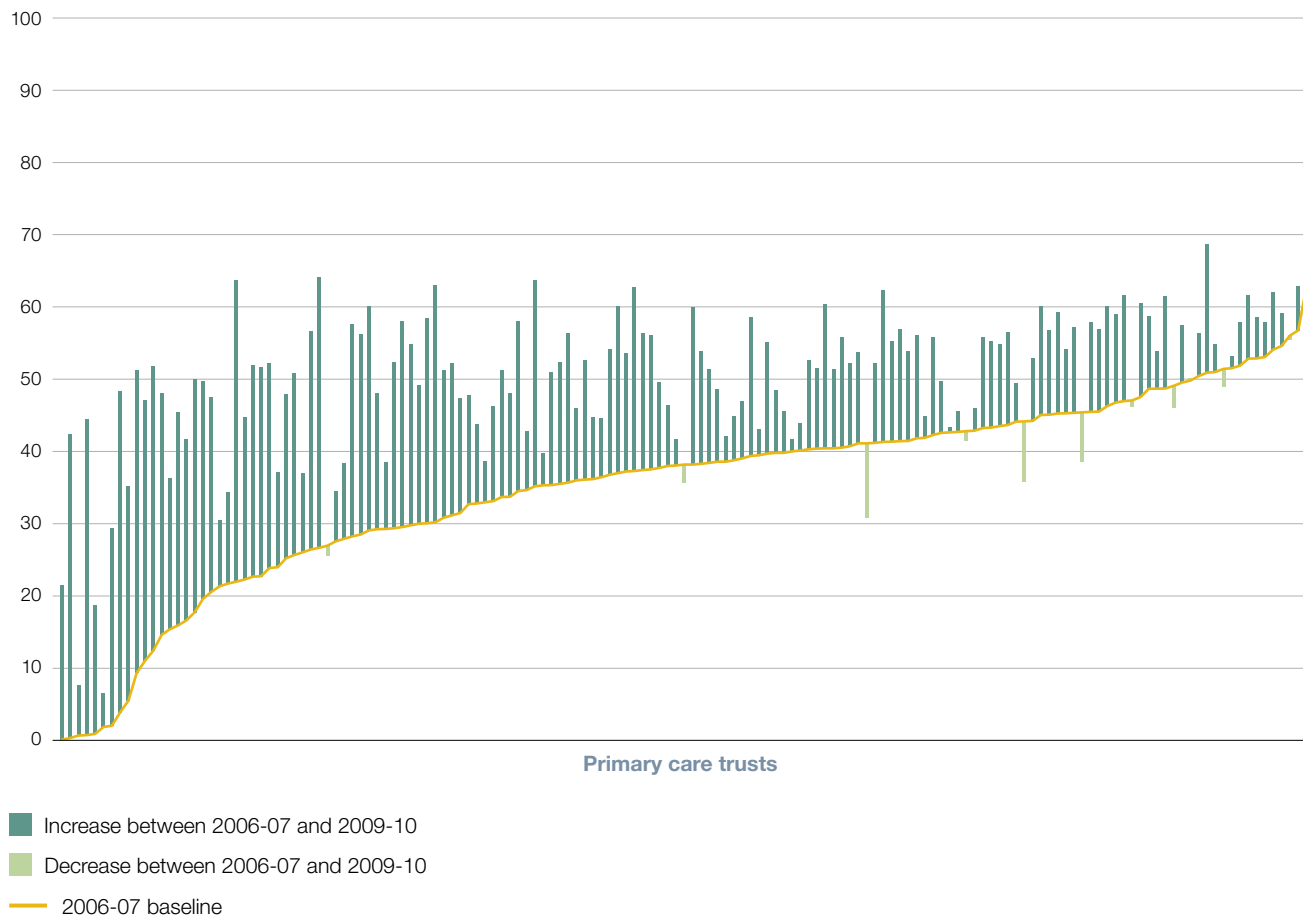
### **Improvements in diabetes care could reduce NHS costs and lead to better patient outcomes**

**3.17** Available economic analysis allows us to estimate whether improved care could generate better patient outcomes and NHS cost savings.

**Figure 13**

Percentage change in primary care trust performance in delivering the nine care processes between 2006-07 and 2009-10

**Percentage of people with diabetes receiving all nine care processes**



Source: National Audit Office analysis of National Diabetes Audit data

There is an economic case for investment in training of NHS staff and patients

**3.18** With structured education and appropriate support many people with diabetes can manage their condition themselves. The Framework identified that this self-care can be supported by giving advice and information to people with diabetes through group structured education programmes. Receiving structured education has been shown to effectively reduce the risk of people with diabetes developing complications. Education can improve knowledge, blood glucose control, weight and dietary management, physical activity and psychological well-being. Guidance from NICE shows that educational programmes are associated with a net cost saving of £2,700 per patient over ten years and a higher number of quality-adjusted life years.

**3.19** There are limited data on the number of patients who are offered and receive education on how best to manage their diabetes. The *National Diabetes Audit* suggests that 1 per cent of the 1.9 million people with diabetes, or 5 per cent of those diagnosed in the last twelve months, received structured education in 2009-10.

**3.20** Since introducing the Framework there have been several reports which have raised concerns regarding the level of care provided to people with diabetes within the NHS. Up to 15 per cent of inpatients are estimated to have diabetes at any one time.<sup>26</sup> However, a 2011 study of 2,100 trainee hospital and specialist doctors in the UK found that they lack confidence in managing diabetes, and are unlikely to take the initiative to help patients to improve how they control their blood glucose levels. Around 70 per cent of these trainee doctors reported a need for further training in the management of diabetes.<sup>27</sup>

**3.21** The Department's 2010 *National Diabetes Inpatient Audit*<sup>26</sup> also found that many people with diabetes currently experience poor levels of care following admissions to hospital. For example, this audit found that more than half of patients on insulin had an insulin prescription error during their time in hospital. People with diabetes also reported a lack of access to specialist inpatient diabetes services, with 69 per cent of people reporting that they had not been seen by a member of the diabetes team.

**3.22** A recent NHS Diabetes paper has summarised the impact of diabetes specialist nurses and multi-disciplinary diabetes inpatient teams on patient outcomes and NHS costs in ten UK hospitals.<sup>28</sup> The paper linked diabetes specialist care teams with improving the care of inpatients with diabetes, such as better control of blood glucose levels, reduced length of stay and lower rates of admission and readmission to hospital. Outside secondary care, diabetic specialist nurses provide primary care teams with specialist expertise in supporting people with diabetes who have complex needs, and training for health care professionals in the care they provide.

26 NHS Diabetes, *National Diabetes Inpatient Audit 2010*, 2011.

27 TOPDOC Diabetes Study Team, 'Lack of confidence among trainee doctors in the management of diabetes: the trainees own perception of delivery of care diabetes study', *QJM*, April 2011.

28 Diabetes UK and NHS Diabetes, *2010 Diabetes Specialist Nursing Work Force Survey Report*, May 2011.



**3.23** A body of evidence is accumulating that supports investing in training for NHS staff and people with diabetes. However, results from our visits to ten primary care trusts and wider departmental workforce surveys suggest that these activities are among those currently being cut by the NHS. During our discussions with commissioners of diabetes services, the decision to decommission, or leave vacant, diabetes specialist nurse posts did not appear to have been made in light of consideration of the long-term cost implications of removing such specialist skills from local health economies.

### **We estimate that through better management of people with diabetes, the NHS could save £170 million a year**

**3.24** Through earlier detection and management of diabetes-related complications in primary care, fewer people with diabetes would require more costly specialist treatment. We estimate that the NHS could save some £170 million a year by reducing hospital activity, and changing the way in which diabetes patients are managed. If the NHS could:

- reduce hospital admissions (excluding readmissions) for people with diabetes by 10 per cent, it could save £34 million a year by avoiding excess hospital activity;
- reduce insulin errors in hospital by 50 per cent, it could save at least £3.25 million a year by improving patient care;
- reduce later referrals to specialist foot teams by up to 50 per cent, it could save at least £34 million a year by decreasing the number of major amputations among people with diabetes; and
- ensure safer discharge from hospital for people with diabetes, it could save £99 million a year through reducing emergency readmissions to the same rate as for people of the same age without the condition.

# Appendix One

## Study methods

Our fieldwork took place between November 2011 and February 2012.

Method	Purpose
<p><b>1 Quantitative analysis of national datasets</b></p> <p>We analysed five national diabetes datasets.</p> <p>The <i>National Diabetes Audit</i>, our key statistical evidence base, covers some 1.9 million GP practice records for people with diabetes.</p> <p>Although more recent data were available for some datasets, we have primarily used 2009-10 data for consistency.</p>	<p>To examine whether the standard of care provided to people with diabetes is consistent across the NHS.</p> <p>To explore the relationship between outcomes for people with diabetes and local performance against recommended standards of care.</p>
<p><b>2 Visits to diabetes services</b></p> <p>We visited ten health economies across England.</p> <p>In order to sample a range of health economies, primary care trusts across the NHS were clustered into five groups who share similar levels of need for diabetes services among their population based on risk factors such as age, ethnicity, obesity and deprivation.</p> <p>The highest performing and most improved primary care trust (for adhering to recommended standards of care) from each cluster were then selected for a field visit, to explore and report upon current best practice.</p>	<p>To understand whether:</p> <ul style="list-style-type: none"> <li>● the NHS understands reasons for any variation in performance;</li> <li>● the NHS has taken action to address any of these variations; and</li> <li>● areas with high achievement against expected standards share key features.</li> </ul>
<p><b>3 Review of key departmental documents</b></p> <p>We reviewed the Department's documents relating to, for example;</p> <ul style="list-style-type: none"> <li>● policy and strategy; and</li> <li>● standards for delivering diabetes care.</li> </ul>	<p>To review whether the Department has set clear standards for delivering diabetes care and provided guidance to the NHS as to how to achieve those standards.</p>
<p><b>4 Interviews with officials from the Department</b></p> <p>We conducted semi-structured interviews with lead officials from the Department.</p>	<p>To understand how far the Department is monitoring NHS performance and whether it has robust plans to improve the future efficiency and quality of diabetes services.</p>
<p><b>5 Review of published academic literature</b></p> <p>We reviewed the academic evidence base covering key study themes.</p>	<p>To gather evidence on the clinical and cost-effectiveness of different service configurations or delivery models, or both.</p>

## Appendix Two

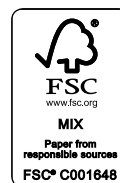
### Percentage of people with diabetes receiving all nine care processes in 2009-10, by primary care trust

Percentage	Primary care trust	
0-9	Mid Essex, Swindon.	
10-19	Medway.	
20-29	Stoke-on-Trent, Berkshire West, Bolton.	
30-39	Worcestershire, Havering, Barking & Dagenham, Southampton City, Kingston, Milton Keynes, North East Essex, Blackburn with Darwen Teaching, West Kent, Manchester, Warwickshire, Redbridge, Bradford & Airedale Teaching, Lincolnshire Teaching, Trafford.	
40-49	40-44	Hammersmith & Fulham, Cornwall & Isles of Scilly, Somerset, Northamptonshire Teaching, Haringey Teaching, North Staffordshire, Rotherham, Brighton & Hove City, Peterborough, Hounslow, Camden, Hillingdon, Dudley, Shropshire County, Middlesbrough, Westminster, Wiltshire.
	45-49	Luton, Plymouth Teaching, Warrington, Wirral, Kensington & Chelsea, Sutton & Merton, West Essex, Portsmouth City Teaching, South East Essex, South West Essex, Surrey, Salford, Bristol, Coventry Teaching, Bedfordshire, Bury, Southwark, Torbay, Croydon, Birmingham East & North, Knowsley, Liverpool, Hampshire, Heart of Birmingham Teaching, West Sussex, Tower Hamlets, Richmond & Twickenham, Derbyshire County.
50-59	50-54	Oldham, Calderdale, Greenwich Teaching, Sandwell, North East Lincolnshire, Solihull, East Sussex Downs & Weald, Leeds, Islington, Sheffield, City & Hackney Teaching, Ashton Leigh & Wigan, Waltham Forest, Buckinghamshire, Heywood Middleton & Rochdale, East Lancashire Teaching, Central Lancashire, Telford & Wrekin, Lewisham, Lambeth, North Tyneside, Barnsley, Hertfordshire, Berkshire East, Tameside & Glossop, Oxfordshire, Cumbria Teaching, Eastern & Coastal Kent, Hull Teaching, Wandsworth, Ealing, Halton & St Helens.
	55-59	Enfield, Kirklees, Leicester City, Cambridgeshire, Barnet, South Birmingham, Bromley, Sefton, Brent Teaching, Gloucestershire, Bassetlaw, Derby City, Great Yarmouth & Waveney, Wolverhampton City, South Staffordshire, Walsall Teaching, North Lincolnshire, Western Cheshire, Newham, Bath & North East Somerset, Central & Eastern Cheshire, Nottingham City, Dorset, South Tyneside, Bexley, Darlington, Redcar & Cleveland, Suffolk, Nottinghamshire County Teaching, North Lancashire Teaching, Devon, County Durham, Wakefield District.
60-69	South Gloucestershire, Stockport, Norfolk, Newcastle, Blackpool, Hartlepool, Stockton-on-Tees Teaching, Leicestershire County & Rutland, Harrow, Bournemouth & Poole Teaching, North Yorkshire & York, East Riding of Yorkshire, Northumberland, North Somerset, Doncaster, Hastings & Rother, Herefordshire, Sunderland Teaching, Gateshead.	

#### NOTE

1 Primary care trusts are listed in ascending order of performance.

Source: National Diabetes Audit, 2009-10



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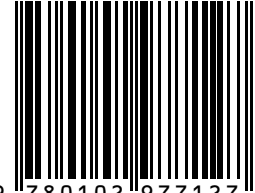
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