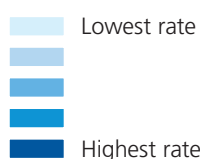


## ENDOCRINE, NUTRITIONAL AND METABOLIC PROBLEMS

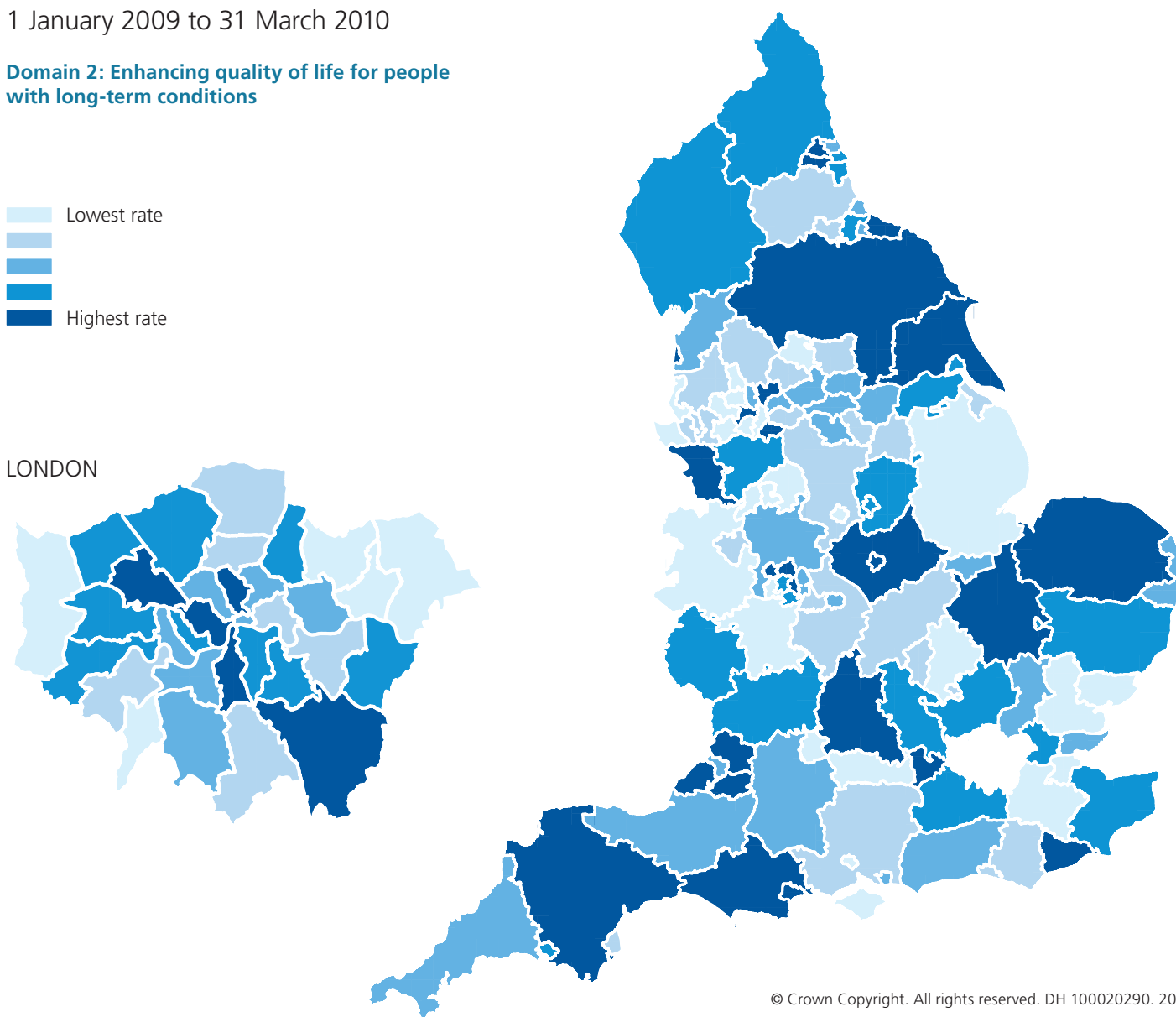
## Map 6: Percentage of people in the National Diabetes Audit (NDA) with Type 1 diabetes receiving all nine key care processes by PCT

1 January 2009 to 31 March 2010

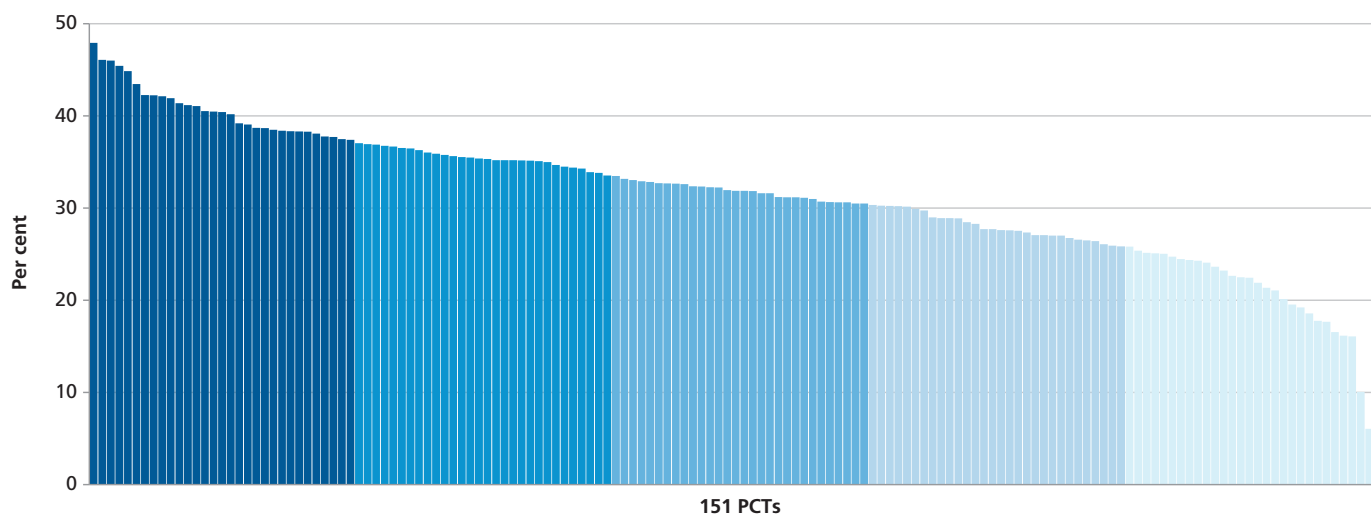
Domain 2: Enhancing quality of life for people with long-term conditions



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## Context

Diabetes is a lifelong metabolic condition in which the body does not produce enough insulin to regulate blood glucose levels. Type 1 diabetes is an auto-immune condition where the cells that produce insulin are destroyed. It often presents in childhood. People with Type 1 diabetes require lifelong insulin to prevent death. It is estimated that 10% of people with diagnosed diabetes have Type 1 diabetes.

In NICE guidance (see "Resources"), it is recommended that all people with Type 1 diabetes should receive the following care processes at least once a year:

1. HbA1c measurement;
2. Cholesterol measurement;
3. Creatinine measurement;
4. Micro-albuminuria measurement;
5. Blood pressure measurement;
6. Body mass index measured;
7. Smoking status recorded;
8. Eye examination;
9. Foot examination.

These care processes are essential for the ongoing management of diabetes and the early detection of complications. They are incentivised within the Quality and Outcomes Framework (QOF).

In England, only 31.9% of people with Type 1 diabetes included in the National Diabetes Audit (NDA) had received all nine key care processes between 1 January 2009 and 31 March 2010.

## Magnitude of variation

For PCTs in England, the percentage of people in the NDA with Type 1 diabetes receiving all nine key care processes ranged from 5.4% to 47.9% (9-fold). When the five PCTs with the highest percentages and the five PCTs with the lowest percentages are excluded, the range is 16.5–43.4%, and the variation is 2.6-fold.

The degree of variation for this indicator is greater than that for the matching indicator for people with Type 2 diabetes (see Map 7).

There is a strong association between the percentage of people with Type 1 diabetes who received all nine key care processes in 2008/09 and the percentage in 2009/10 suggesting that the variation is persistent over time (correlation co-efficient=0.769; see Figure 6.1). There is no statistically significant correlation between this indicator and deprivation at PCT level (see Figure 6.2). Both these results suggest that the degree of variation observed is related to how services are organised.

## Options for action

Commissioners and providers should ensure that robust arrangements are put in place for everyone with Type 1 diabetes to receive an annual review covering all nine key care processes, which could include:

- Administrative systems that reliably invite all people with Type 1 diabetes for their annual checks;
- Processes to follow-up and remind non-attenders;
- Convenient access;
- Ensuring that scheduled checks are undertaken on attendance, and accurate recording of the results.

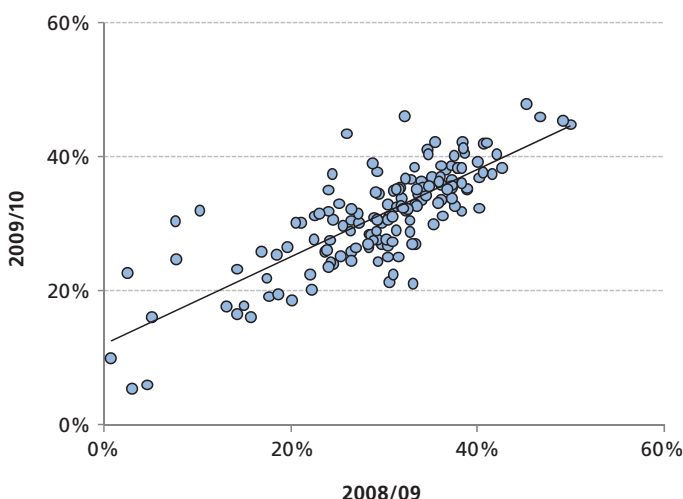
## RESOURCES

- NICE Guidance Type 1 diabetes. Diagnosis and management of type 1 diabetes in children, young people and adults.  
<http://guidance.nice.org.uk/CG15>
- NICE Care pathway for diabetes.  
<http://pathways.nice.org.uk/pathways/diabetes>

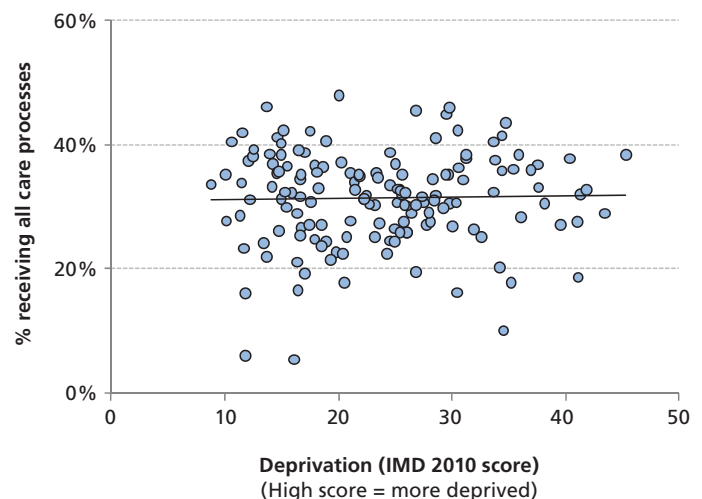
*This indicator is included in the Diabetes Themed Atlas.*

*A different methodology to illustrate the variation among PCTs has been used in the Diabetes Themed Atlas, therefore, the shading used in the map and the column chart differs between the two publications. However, the conclusions in the commentaries are based on analyses of the same data and are the same for both publications.*

**Figure 6.1: Type 1 diabetes patients (%) receiving all nine care processes over time**



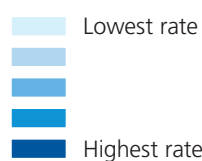
**Figure 6.2: Type 1 diabetes patients (%) receiving all nine care processes in relation to deprivation**



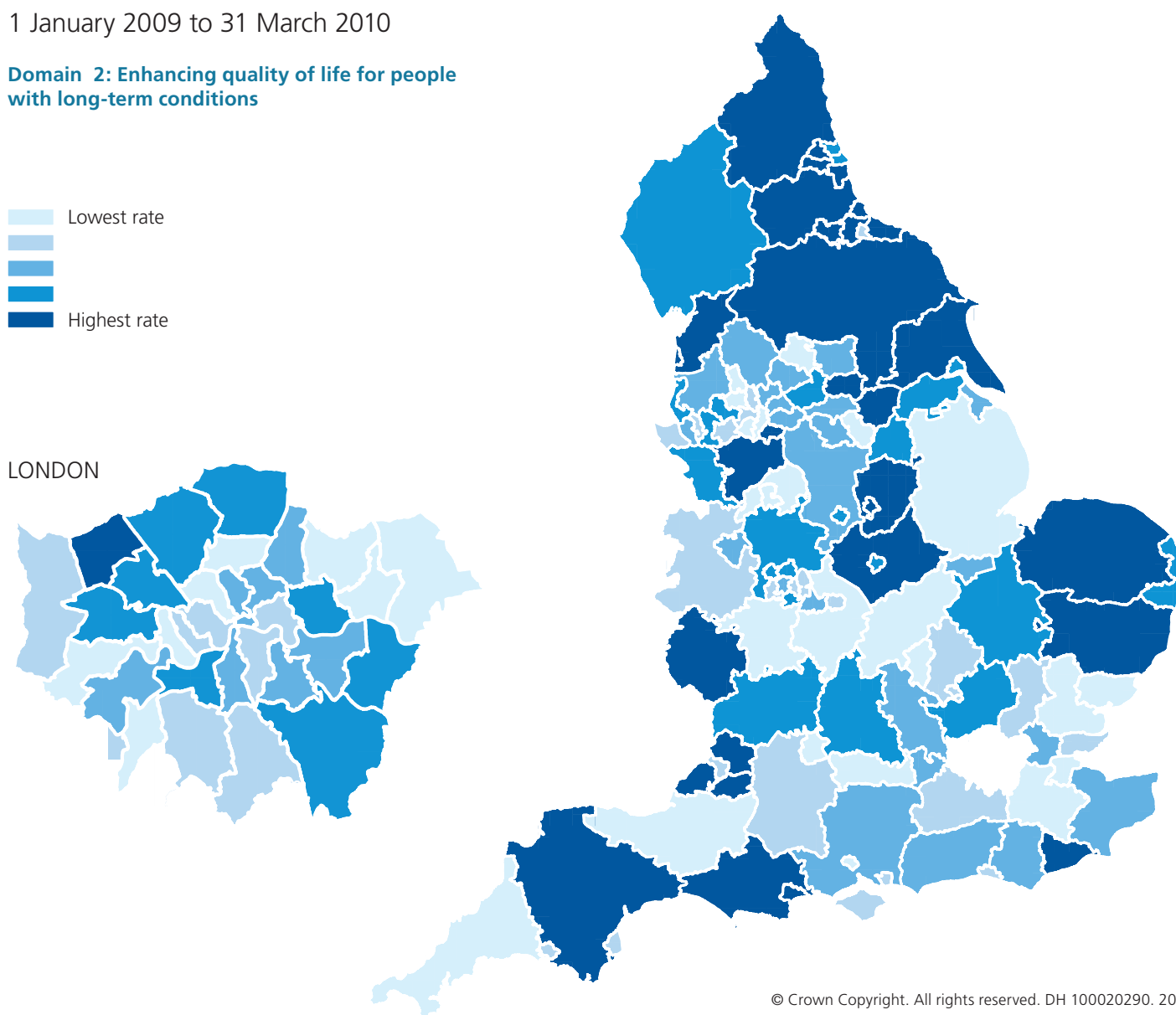
## ENDOCRINE, NUTRITIONAL AND METABOLIC PROBLEMS

**Map 7:** Percentage of people in the National Diabetes Audit (NDA) with Type 2 diabetes receiving all nine key care processes by PCT

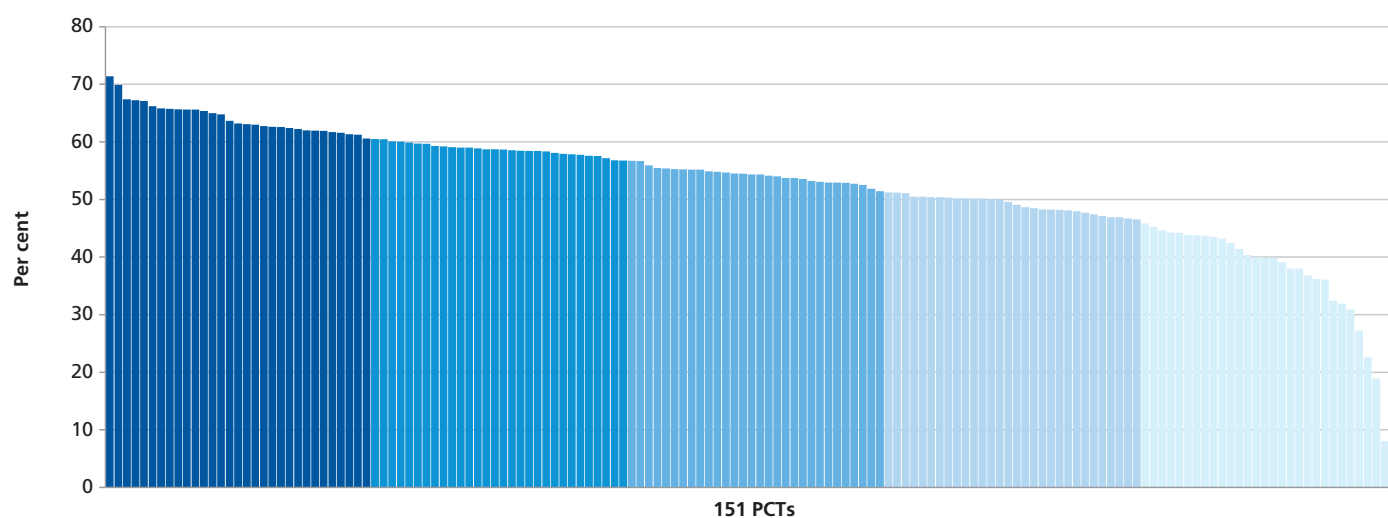
1 January 2009 to 31 March 2010

**Domain 2: Enhancing quality of life for people with long-term conditions**

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## Context

Diabetes is a lifelong metabolic condition in which the body does not produce enough insulin to regulate blood glucose levels. Type 2 diabetes occurs when the body does not produce enough insulin for its needs. It is a progressive lifelong condition that requires lifestyle management (diet and exercise) at all stages followed by tablets and commonly insulin. The chance of developing Type 2 diabetes increases with age, overweight, and inactivity. People from Black, Middle Eastern and South Asian ethnic groups have a greater risk of developing Type 2 diabetes when compared with people from White ethnic groups.

In NICE guidance (see "Resources"), it is recommended that all people with Type 2 diabetes should receive the following care processes at least once a year:

- › HbA1c measurement;
- › Cholesterol measurement;
- › Creatinine measurement;
- › Micro-albuminuria measurement;
- › Blood pressure measurement;
- › Body mass index measured;
- › Smoking status recorded;
- › Eye examination;
- › Foot examination.

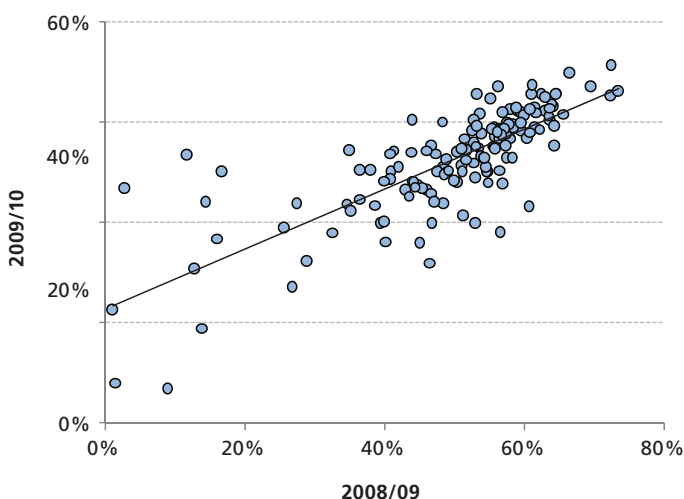
These care processes are essential for the ongoing management of diabetes and the early detection of complications. They are incentivised within the Quality and Outcomes Framework (QOF).

In England, only 52.9% of people in the National Diabetes Audit (NDA) with Type 2 diabetes had received all nine key care processes between 1 January 2009 and 31 March 2010.

## Magnitude of variation

For PCTs in England, the percentage of people in the NDA with Type 2 diabetes receiving all nine key care processes ranged from 7% to 71.4% (10-fold variation). When the five PCTs with the highest percentages and the five PCTs with the lowest percentages are excluded, the range is 30.9–66.2%, and the variation is 2.1-fold.

**Figure 7.1: Type 2 diabetes patients (%) receiving all nine care processes over time**



The degree of variation for this indicator is less than that for the matching indicator for people with Type 1 diabetes (see Map 6).

There is a strong association between the percentage of people with Type 2 diabetes who received all nine care processes in 2008/09 and that in 2009/10 suggesting that the variation is persistent over time (correlation coefficient=0.798; see Figure 7.1). There is no statistically significant correlation between this indicator and deprivation at PCT level (see Figure 7.2). Both these results suggest that the degree of variation observed is related to how services are organised.

## Options for action

Commissioners and providers should ensure that robust arrangements are put in place for everyone with Type 2 diabetes to receive an annual review covering all nine key care processes, which could include:

- › Administrative systems that reliably invite all people with Type 2 diabetes for their annual checks;
- › Processes to follow-up and remind non-attenders;
- › Convenient access;
- › Ensuring that scheduled checks are undertaken on attendance, and accurate recording of the results.

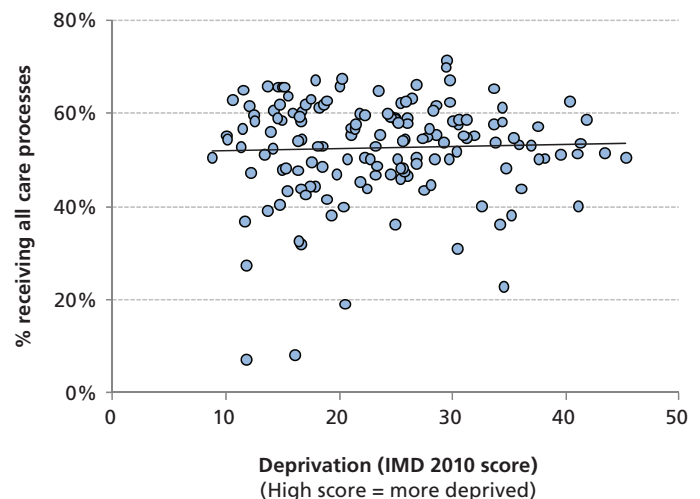
## RESOURCES

- › NICE Guidance Type 2 diabetes (partially updated by CG87). Type 2 diabetes: the management of type 2 diabetes (update). <http://www.nice.org.uk/CG66>
- › NICE Care pathway for diabetes. <http://pathways.nice.org.uk/pathways/diabetes>

*This indicator is included in the Diabetes Themed Atlas.*

*A different methodology to illustrate the variation among PCTs has been used in the Diabetes Themed Atlas, therefore, the shading used in the map and the column chart differs between the two publications. However, the conclusions in the commentaries are based on analyses of the same data and are the same for both publications.*

**Figure 7.2: Type 2 diabetes patients (%) receiving all nine care processes in relation to deprivation**



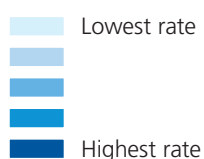


## ENDOCRINE, NUTRITIONAL AND METABOLIC PROBLEMS

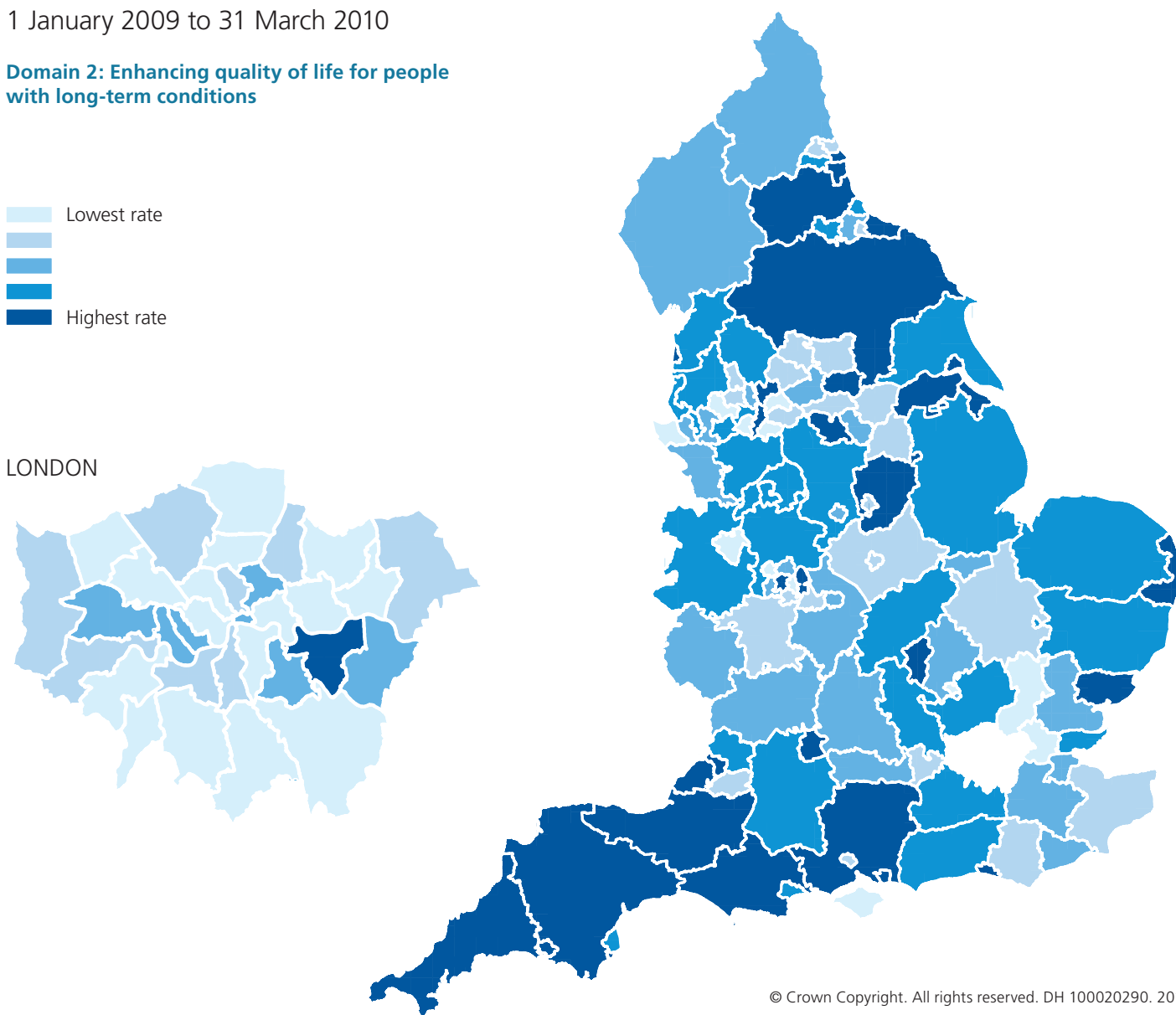
# Map 8: Percentage of people in the National Diabetes Audit (NDA) having major lower limb amputations five years prior to the end of the audit period by PCT

1 January 2009 to 31 March 2010

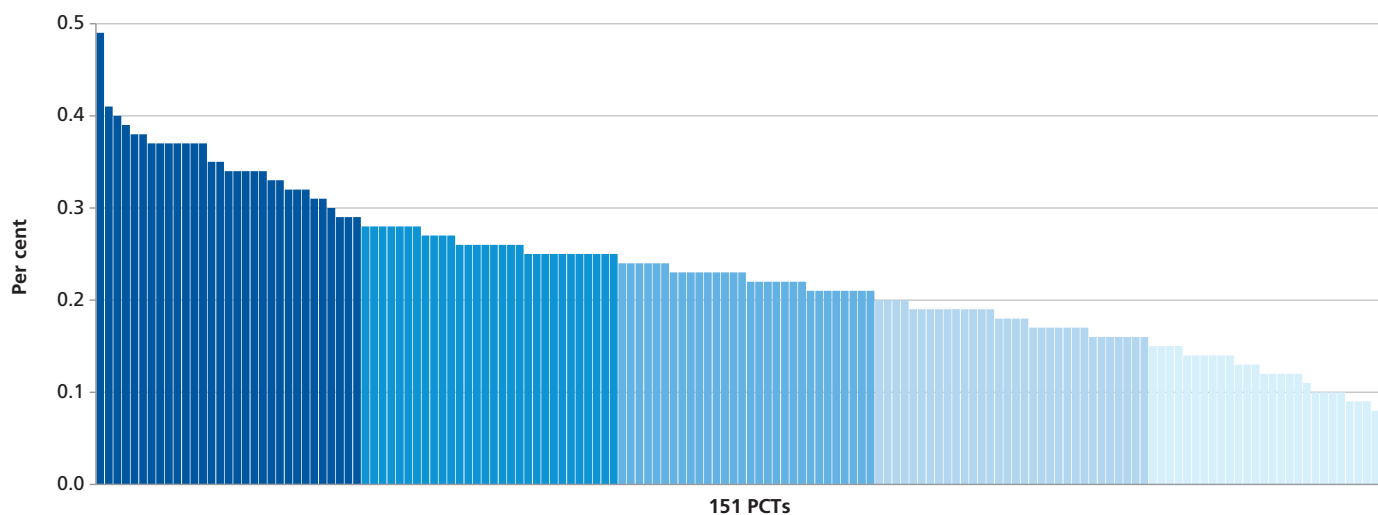
Domain 2: Enhancing quality of life for people with long-term conditions



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## Context

People with diabetes are predisposed to developing foot ulcers primarily if they develop peripheral arterial disease (PAD) and/or peripheral neuropathy. Once ulcers occur, healing may be delayed by several factors, including infection, PAD, and continued unnoticed trauma to the wound. Chronic ulceration is the commonest precursor to amputation of the lower limb (defined as above the ankle). Approximately half of the major lower limb amputations in England are in people who have diabetes. In the five years prior to March 2010, 0.24% of people with diabetes included in the National Diabetes Audit (NDA) had had a major lower limb amputation.

## Magnitude of variation

For PCTs in England, the percentage of people in the NDA having major lower limb amputations five years prior to the end of the audit period ranged from 0.1% to 0.5% (6-fold variation).<sup>1</sup> When the five PCTs with the highest percentages and the five PCTs with the lowest percentages are excluded, the range is 0.1–0.4%, and the variation is 3.8-fold.

A similar indicator appeared in Atlas 1.0 (Map 3), but the geography was by strategic health authority (rather than PCT), and the patient group was people in the NDA with Type 2 diabetes (rather than all people with diabetes) having a major lower limb amputation in the five years prior to the end of the audit period in 2009 (a twofold variation at this higher geographical level).

## Options for action

Good blood glucose control reduces the risk of developing PAD and peripheral neuropathy. Expert assessment and follow-up of people with PAD and/or neuropathy may reduce the onset of new foot disease. Urgent referral to expert services of all newly occurring, or deteriorating, foot disease will lead to improved outcomes.

The results of local studies have shown that the introduction of multidisciplinary teams to assess and treat diabetic foot disease has reduced major amputation rates (see Map 3, Atlas 1.0). Current guidelines (see “Resources”) recommend that:

- all people with diabetes have an annual examination to assess individual risk and that those at increased risk are referred to a member of a foot protection team (FPT) for long-term surveillance (an FPT has expertise in protecting the foot, and typically includes podiatrists, orthotists and footcare specialists);
- all people with diabetes who are admitted to hospital for any reason have their foot risk assessed;
- all people with diabetes who have newly occurring foot disease are referred for urgent assessment by a member of a specialist multidisciplinary team.

## RESOURCES

- NICE Guidance Diabetic foot problems – inpatient management. Diabetic foot – inpatient management of people with diabetic foot ulcers and infection. <http://www.nice.org.uk/guidance/CG119>
- Diabetes UK. Putting Feet First (June 2009) Commissioning specialist services for the management and prevention of diabetic foot disease in hospitals. <http://www.diabetes.org.uk/Professionals/Publications-reports-and-resources/Reports-statistics-and-case-studies/Reports/Putting-feet-first/>
- NICE Care pathway for diabetes. <http://pathways.nice.org.uk/pathways/diabetes>

*This indicator is included in the Diabetes Themed Atlas.*

*A different methodology to illustrate the variation among PCTs has been used in the Diabetes Themed Atlas, therefore, the shading used in the map and the column chart differs between the two publications. However, the conclusions in the commentaries are based on analyses of the same data and are the same for both publications.*

<sup>1</sup> Data from one PCT have been excluded.

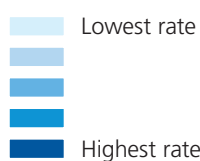
## ENDOCRINE, NUTRITIONAL AND METABOLIC PROBLEMS

**Map 9:** Excess length of stay (%) in hospital among people with diabetes when compared with people without diabetes by PCT

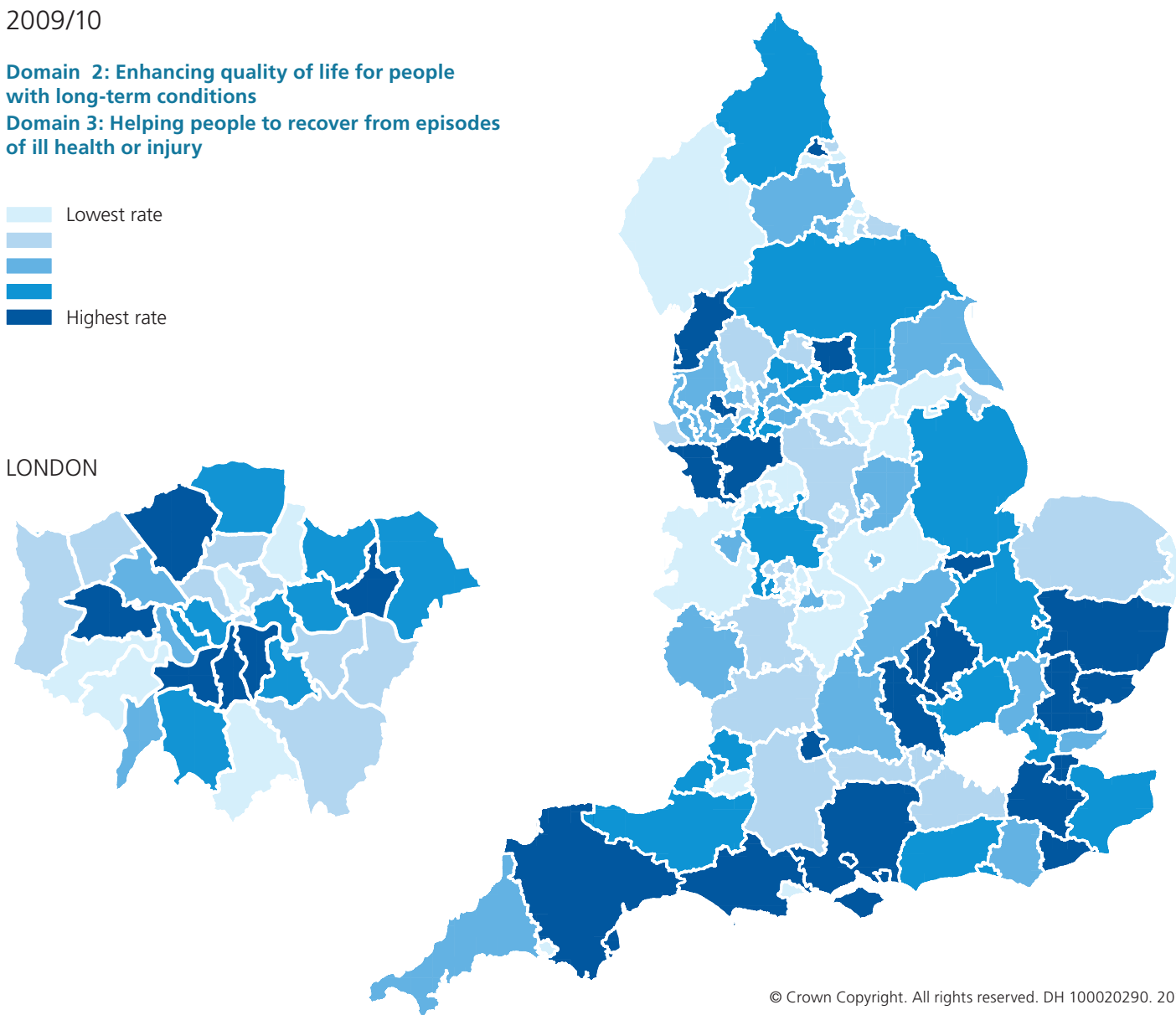
2009/10

Domain 2: Enhancing quality of life for people with long-term conditions

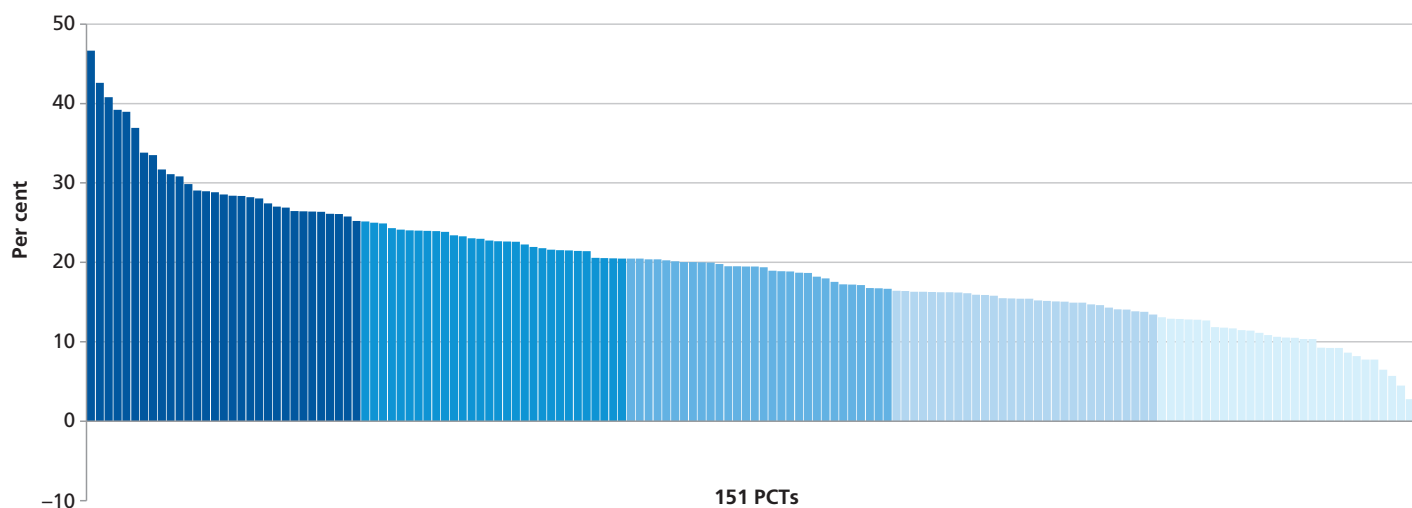
Domain 3: Helping people to recover from episodes of ill health or injury



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## Context

People with diabetes are more likely than those without diabetes to be admitted to hospital. When in hospital, people with diabetes stay for longer when compared with people of a similar age who do not have diabetes but are admitted for similar conditions. In England, people with diabetes stayed in hospital 795,000 days or 19.4% longer than would have been expected if they had the same length of stay as people of a similar age who do not have diabetes.

## Magnitude of variation

For PCTs in England, the excess length of stay among people with diabetes when compared with people without diabetes ranged from -0.4% to 46.7%. When the five PCTs with the highest percentages and the five PCTs with the lowest percentages are excluded, the range is 7.8–36.9%, and the variation is 4.8-fold.

There is a correlation between the percentage difference of excess lengths of stay among people with diabetes when compared with people who do not have the

condition in 2008/09 and that in 2009/10 ( $r=0.657$ ,  $p<0.0005$ ; see Figure 9.1). These results suggest that the variation in excess lengths of stay among people with diabetes when compared with people who do not have the condition is related to how services are organised.

## Options for action

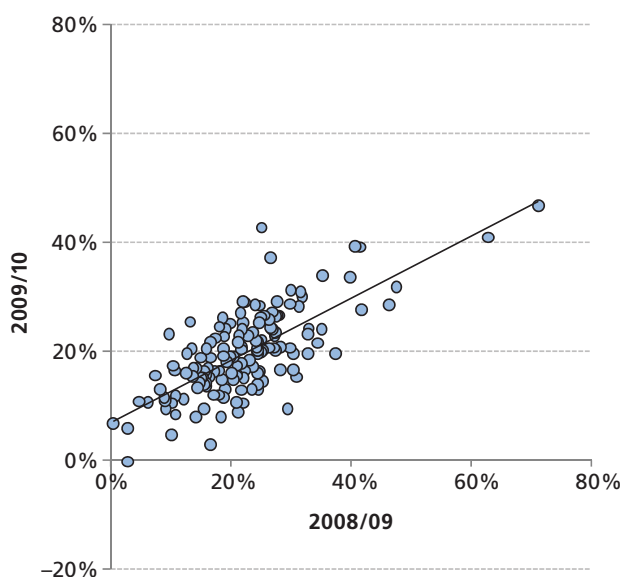
The results of local studies in Plymouth and Norwich (see "Resources") have shown that the introduction of dedicated inpatient diabetes teams can reduce the length of stay for people with diabetes. In these local studies, diabetes specialist nurses provided:

- › diabetes training and awareness raising for non-diabetes clinical staff;
- › protocols for the management of patients with diabetes;
- › specific input into the management of patients experiencing problems with their diabetes management.

## RESOURCES

- › VIA: Diabetes tool (source of the indicator). <http://www.yhpho.org.uk/resource/view.aspx?RID=105866>
- › Flanagan D, Moore E, Baker S, Wright D, Lynch P (2008) Diabetes care in hospital – the impact of a dedicated inpatient care team. *Diabetic Medicine* 25, 147–151.
- › Sampson MJ, Crowle T, Dhatariya K et al (2006) Trends in bed occupancy for inpatients with diabetes before and after the introduction of a diabetes inpatient specialist nurse service. *Diabetic Medicine* 23, 1008–1015.
- › NICE Care pathway for diabetes. <http://pathways.nice.org.uk/pathways/diabetes>

**Figure 9.1: Excess length of stay (%) in patients with diabetes over time**



*This indicator is included in the Diabetes Themed Atlas.*

*A different methodology to illustrate the variation among PCTs has been used in the Diabetes Themed Atlas, therefore, the shading used in the map and the column chart differs between the two publications. However, the conclusions in the commentaries are based on analyses of the same data and are the same for both publications.*

## ENDOCRINE, NUTRITIONAL AND METABOLIC PROBLEMS

**Map 10:** Insulin total net ingredient cost per patient on GP diabetes registers by PCT

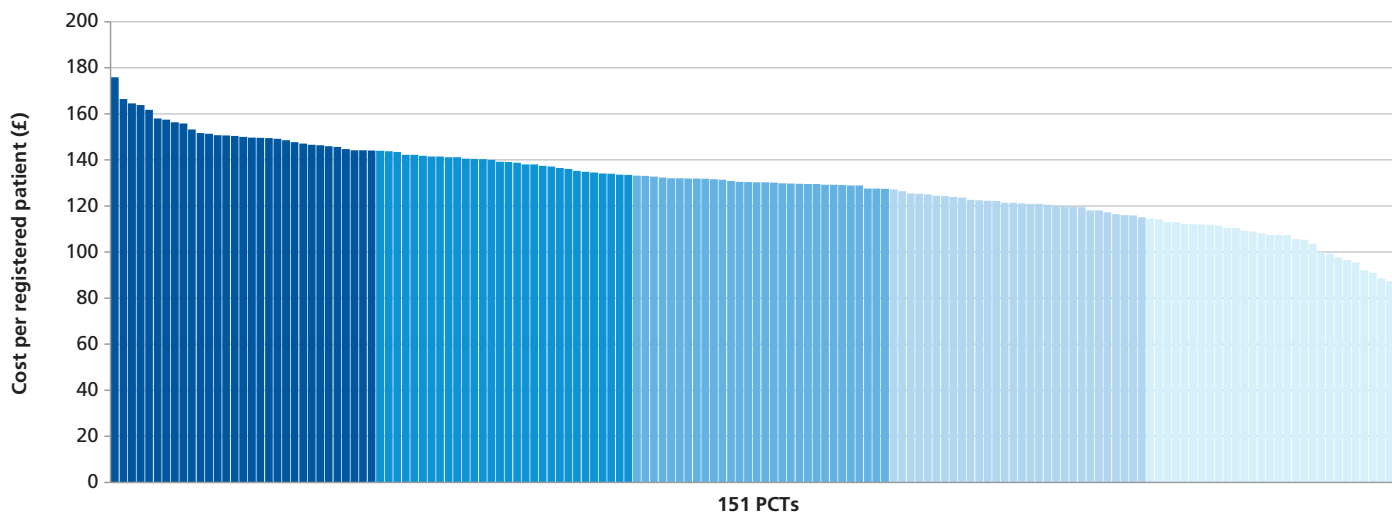
2010/11

Domain 2: Enhancing quality of life  
for people with long-term conditions

Lowest rate

Highest rate

LONDON



## Context

Diabetes is costly. In 2009/10, prescribing for all anti-diabetic items including blood-testing items cost £725.1 million and accounted for 8.4% of the total spend on prescriptions in primary care, an increase of 41.2% since 2005/06. The costs of diabetes prescribing are increasing faster than those for any other category of drugs.<sup>1</sup>

Insulin is used to lower blood glucose in people with Type 1 diabetes, and in people with Type 2 diabetes when non-insulin drugs are not providing adequate control. In 2010/11 in England, prescriptions for insulin cost £307 million, and the average spend per adult with diabetes was £131.46.

## Magnitude of variation

For PCTs in England, the insulin total net ingredient cost per patient on GP diabetes registers ranged from £79 to £176 (2.2-fold variation). When the five PCTs with the highest costs and the five PCTs with the lowest costs are excluded, the range is £95–£158 per patient, and the variation is 1.7-fold.

The degree of variation for this indicator is less than that for the indicator concerning the cost of non-insulin anti-diabetic items (see Map 11).

There was no correlation between spending on insulin items and the percentage of people with Type 1 diabetes or with Type 2 diabetes whose last HbA1c measurement was 7.5% (58mmol/mol) or less at PCT level (see Figure 10.1). This indicates that the PCTs spending the most on insulin do not necessarily have the greatest percentage of people with diabetes with optimal blood glucose control.

There is a strong correlation (correlation co-efficient=0.977; see Figure 10.2) between expenditure on insulin items in 2008/09 and that in 2009/10 suggesting that prescribing patterns at a PCT level are persistent over time.

Both these results suggest that the variation in expenditure on insulin is related to how services are organised.

## Options for action

NICE guidance (see "Resources") contains recommended treatment regimens for people with Type 1 and Type 2 diabetes.

Commissioners and providers need to investigate variation in local expenditure on insulin and consider whether local prescribing practice is in line with NICE guidance. The investigation should include:

- › local case-mix;
- › patterns of insulin use among people with Type 2 diabetes.

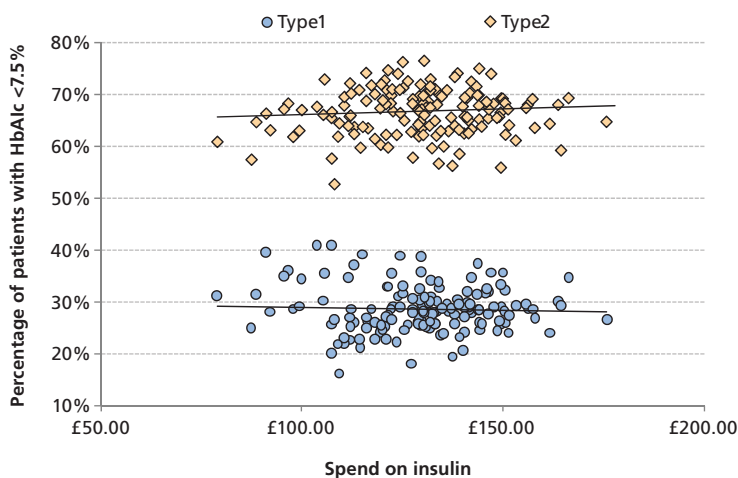
## RESOURCES

- › NICE Guidance Type 1 diabetes. Diagnosis and management of type 1 diabetes in children, young people and adults. <http://guidance.nice.org.uk/CG15>
- › NICE Guidance Type 2 diabetes (partially updated by CG87). Type 2 diabetes: the management of type 2 diabetes (update). <http://www.nice.org.uk/CG66>
- › NICE Care pathway for diabetes. <http://pathways.nice.org.uk/pathways/diabetes>

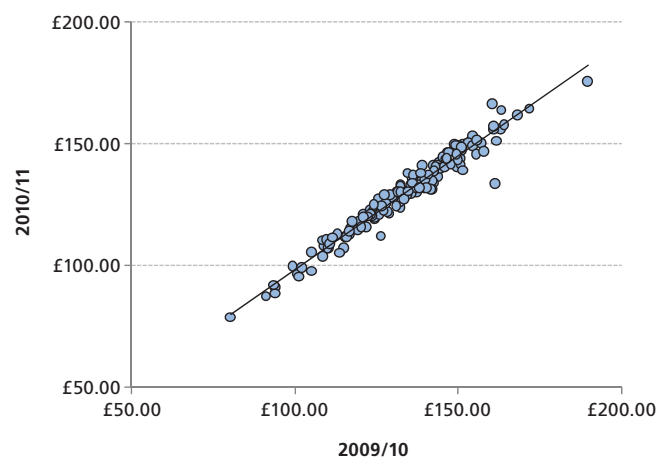
*This indicator is included in the Diabetes Themed Atlas.*

*A different methodology to illustrate the variation among PCTs has been used in the Diabetes Themed Atlas, therefore, the shading used in the map and the column chart differs between the two publications. However, the conclusions in the commentaries are based on analyses of the same data and are the same for both publications.*

**Figure 10.1: Blood glucose control for Type 1 and Type 2 diabetes patients (%) compared with spend (£) on insulin**



**Figure 10.2: Spend (£) on insulin items over time**



<sup>1</sup> Prescribing for Diabetes in England 2005/06 to 2010/11. [http://www.ic.nhs.uk/webfiles/publications/prescribing%20diabetes%20200506%20to%20201011/Prescribing\\_for\\_Diabetes\\_in\\_England\\_20056\\_to\\_201011.pdf](http://www.ic.nhs.uk/webfiles/publications/prescribing%20diabetes%20200506%20to%20201011/Prescribing_for_Diabetes_in_England_20056_to_201011.pdf)



## ENDOCRINE, NUTRITIONAL AND METABOLIC PROBLEMS

**Map 11:** Non-insulin anti-diabetic drugs total net ingredient cost per patient on GP diabetes registers by PCT

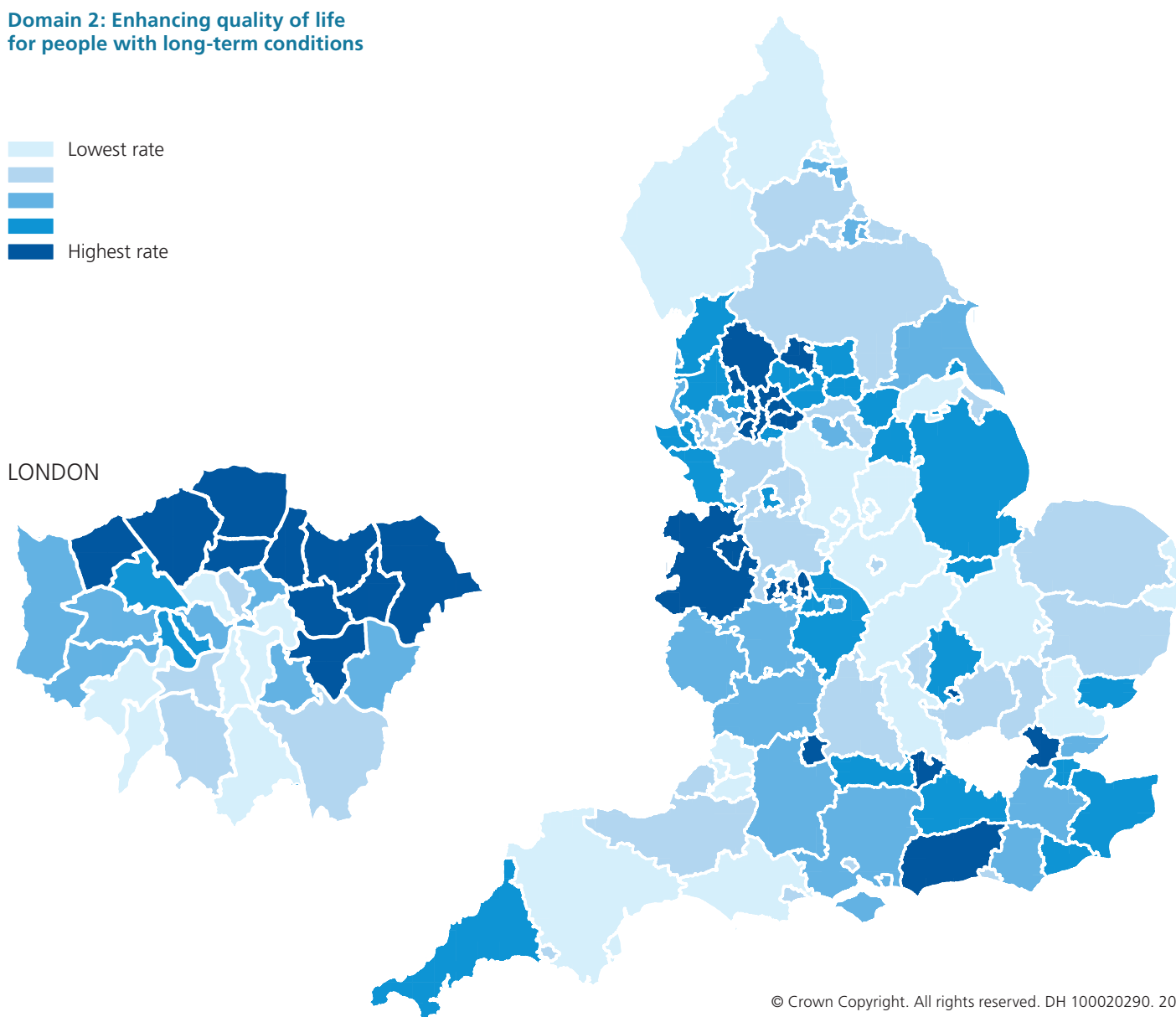
2010/11

Domain 2: Enhancing quality of life  
for people with long-term conditions

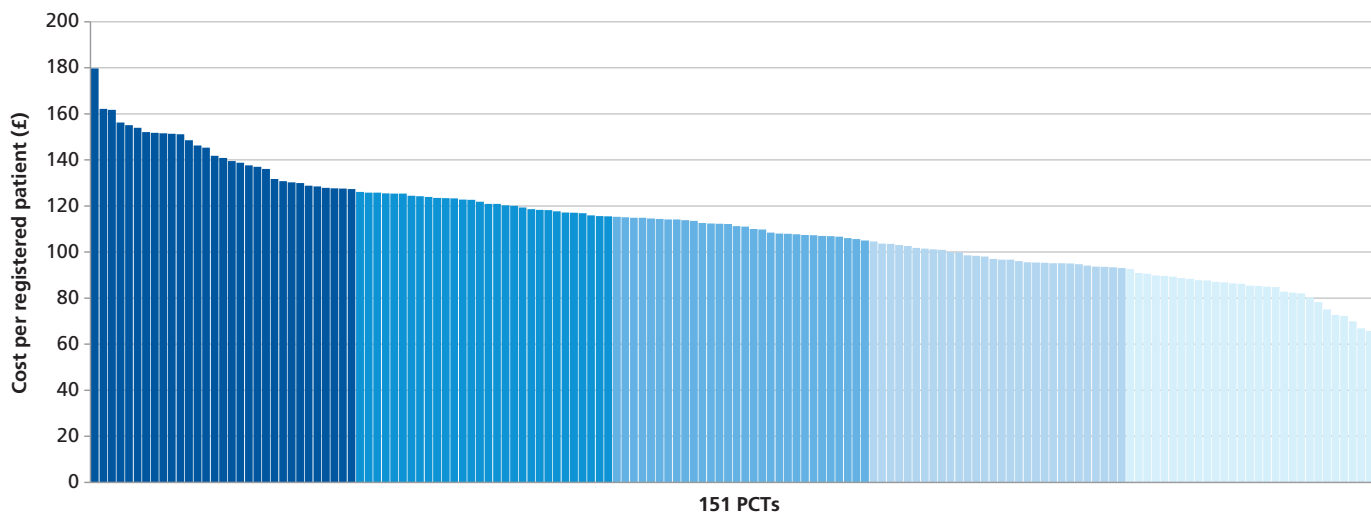
Lowest rate

Highest rate

LONDON



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## Context

Diabetes is costly. In 2009/10, prescribing for all anti-diabetic items including blood-testing items cost £725.1 million and accounted for 8.4% of the total spend on prescriptions in primary care, an increase of 41.2% since 2005/06. The costs of diabetes prescribing are increasing faster than those for any other category of drugs.<sup>1</sup>

Non-insulin anti-diabetic drugs (mainly tablets) are used to control blood glucose levels in people with Type 2 diabetes. In 2010/11, prescriptions for non-insulin anti-diabetic drugs in England cost £259 million, and the average spend per adult with diabetes was £110.79.

## Magnitude of variation

For PCTs in England, the non-insulin anti-diabetic drugs total net ingredient cost (NIC) per patient on GP diabetes registers ranged from £65 to £180 (2.8-fold). When the five PCTs with the highest costs and the five PCTs with the lowest costs are excluded, the range is £73–£154 per patient, and the variation is 2.1-fold.

The degree of variation is greater for this indicator than that for the cost of insulin drugs (see Map 10).

There was no correlation between spending on non-insulin anti-diabetic drugs and the percentage of people with Type 2 diabetes whose last HbA1c measurement was 7.5% (58mmol/mol) or less at PCT level (see Figure 11.1). This indicates that the PCTs spending the most on non-insulin anti-diabetic drugs do not necessarily have the greatest percentage of people with diabetes with optimal blood glucose control.

There is a strong correlation (correlation co-efficient=0.958; see Figure 11.2) between expenditure on non-insulin anti-diabetic drugs in 2008/09 and that in 2009/10 suggesting that prescribing patterns at a PCT level are persistent over time.

Both these results suggest that the variation in expenditure on non-insulin anti-diabetic drugs is related to how services are organised.

## Options for action

NICE guidance (see "Resources") contains recommended treatment regimens for people with Type 2 diabetes.

Commissioners and providers need to investigate variation in local expenditure on non-insulin anti-diabetic drugs and consider whether local prescribing practice is in line with NICE guidance. Local investigation of prescribing patterns should include:

- › Variation among practices in the mix of non-insulin anti-diabetic items prescribed;
- › Practice-based NIC for diabetes drugs versus glucose control in people with Type 2 diabetes;
- › The association between prescribing for non-insulin anti-diabetic items and HbA1c outcomes.

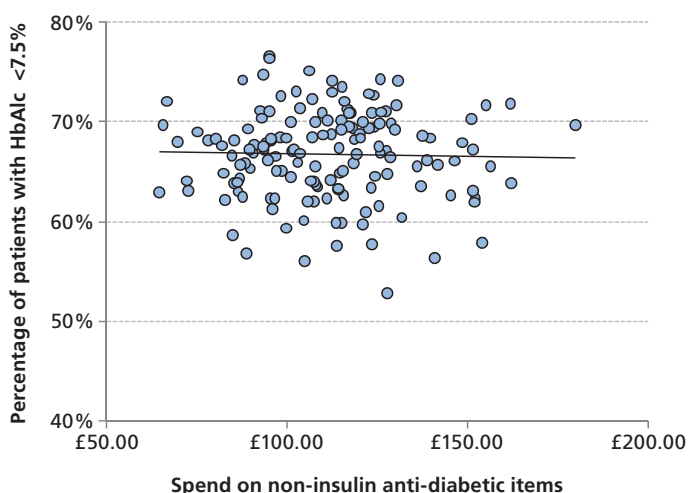
## RESOURCES

- › NICE Guidance Type 2 diabetes (partially updated by CG87). Type 2 diabetes: the management of type 2 diabetes (update). <http://www.nice.org.uk/CG66>
- › NICE Care pathway for diabetes. <http://pathways.nice.org.uk/pathways/diabetes>

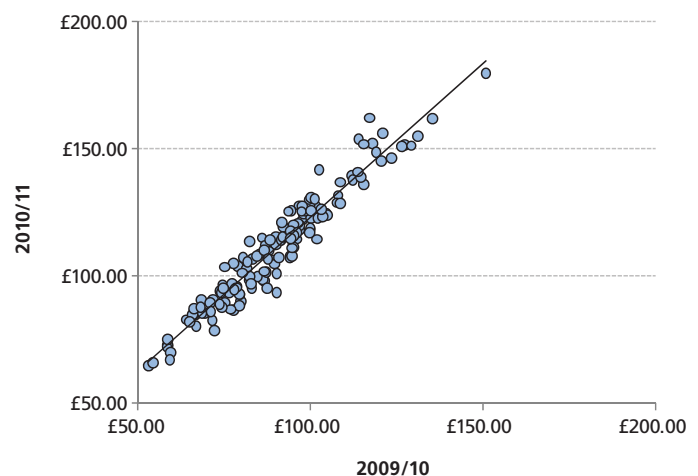
*This indicator is included in the Diabetes Themed Atlas.*

*A different methodology to illustrate the variation among PCTs has been used in the Diabetes Themed Atlas, therefore, the shading used in the map and the column chart differs between the two publications. However, the conclusions in the commentaries are based on analyses of the same data and are the same for both publications.*

**Figure 11.1: Blood glucose control for Type 2 diabetes patients (%) compared with spend (£) on non-insulin anti-diabetic items**



**Figure 11.2: Spend (£) on non-insulin anti-diabetic items over time**



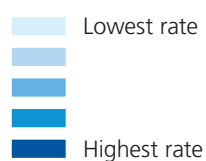
<sup>1</sup> Prescribing for Diabetes in England 2005/06 to 2010/11. [http://www.ic.nhs.uk/webfiles/publications/prescribing%20diabetes%20200506%20to%20201011/Prescribing\\_for\\_Diabetes\\_in\\_England\\_20056\\_to\\_201011.pdf](http://www.ic.nhs.uk/webfiles/publications/prescribing%20diabetes%20200506%20to%20201011/Prescribing_for_Diabetes_in_England_20056_to_201011.pdf)

## ENDOCRINE, NUTRITIONAL AND METABOLIC PROBLEMS

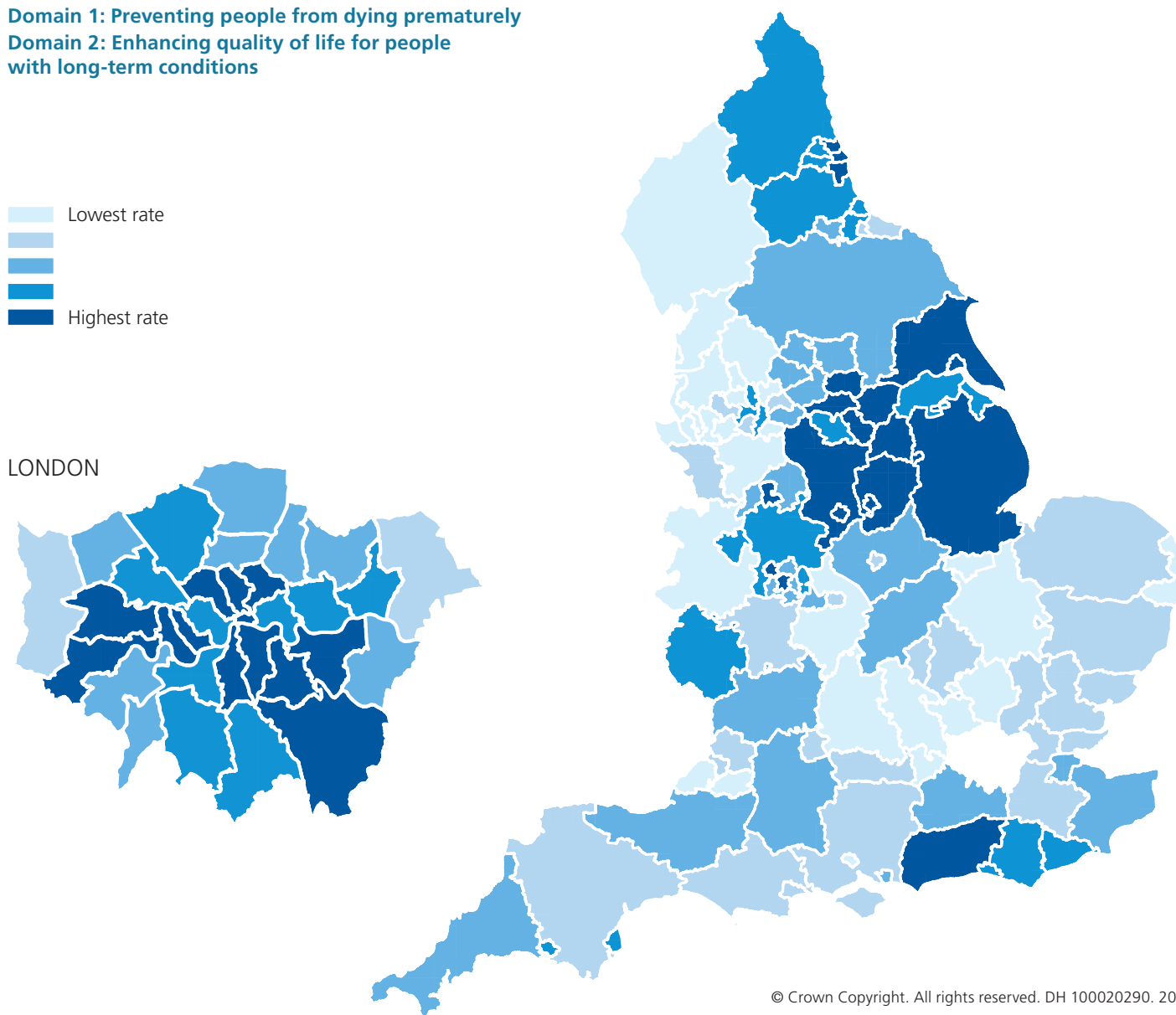
## Map 12: Rate of bariatric procedures in hospital per population by PCT

Directly standardised rate 2007/08-2009/10

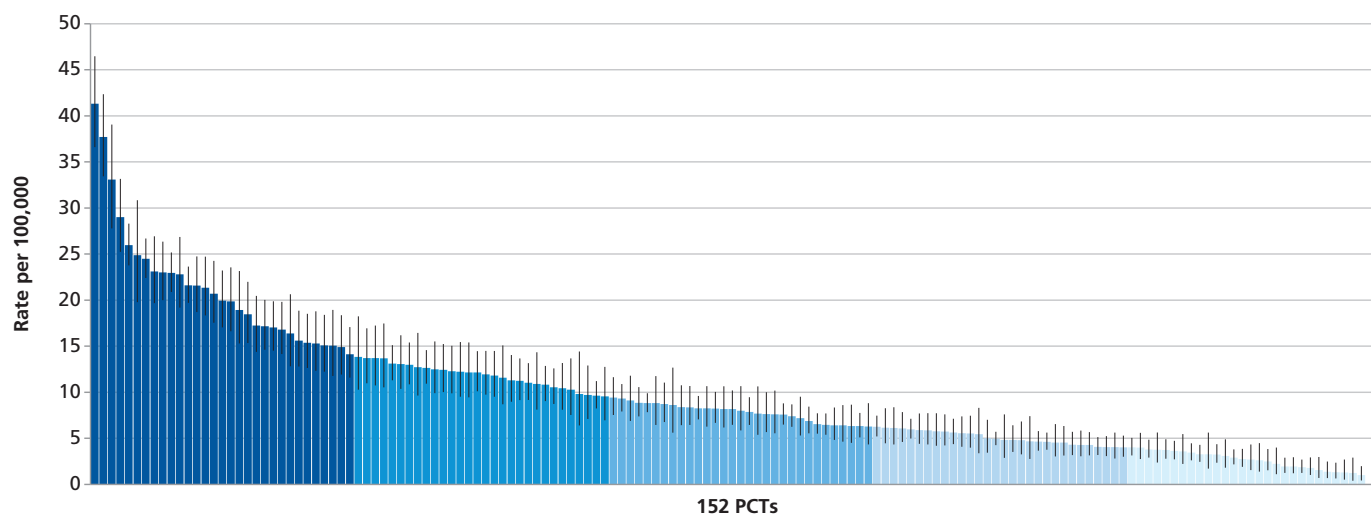
Domain 1: Preventing people from dying prematurely  
Domain 2: Enhancing quality of life for people with long-term conditions



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## Context

This indicator has been repeated from Atlas 1.0 (Map 5, Atlas 1.0):

- › coding has been updated (details of codes are provided in the accompanying metadata available from the Right Care website);
- › the rate of bariatric procedures per population over time has been included.

“Bariatric surgery” is a generic term used to describe a group of procedures performed to facilitate weight loss. The most commonly performed procedures in the UK are:

- › adjustable gastric banding;
- › gastric bypass;
- › sleeve gastrectomy.

The number of NHS-commissioned bariatric surgery procedures in England has increased rapidly in recent years across all strategic health authorities (SHAs), although levels of activity vary widely across PCTs. In most SHAs, the rate of bariatric surgery has risen year on year over the period 2003/04–2009/10 (see Figure 12.1).

## Magnitude of variation

For PCTs in England, the rate of bariatric procedures in hospital per 100,000 ranged from 0.4 to 41.3 (93-fold variation). When the five PCTs with the highest rates and the five PCTs with the lowest rates are excluded, the range is 1.3–24.9 per 100,000, and the variation is 19-fold.

Potential reasons for variation include:

- › Access to/provision of bariatric surgery – in areas where rates are lowest, there may be limited access to surgery as a routine form of intervention;

- › Deprivation - the highest rates are found within or adjacent to the most deprived areas;
- › Obesity prevalence, which is related to deprivation – at present, it is not possible to compare rates of admission for bariatric surgery with obesity prevalence by PCT because these data are not available (modelled estimates are based on national rates and may not be representative).

Interpreting the variation in bariatric surgery is difficult due to lack of data on activity in the private sector.

## Options for action

In NICE guidance (see “Resources”), bariatric surgery is recommended as a treatment option for people with morbid obesity, or who have a lower body mass index (BMI) coupled with other significant disease.

However, bariatric surgery should be offered only when all appropriate non-surgical measures have been unsuccessful, except in adults with a BMI of  $>50 \text{ kg/m}^2$ , who may be offered surgery as a first-line treatment option, and which should be part of a comprehensive package of obesity services provided by a multidisciplinary team.

## RESOURCES

- › NICE clinical guideline 43. Obesity: guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children. <http://www.nice.org.uk/nicemedia/live/11000/30365/30365.pdf>
- › National Obesity Observatory (NOO) provides a single point of contact for wide-ranging authoritative information on data, evaluation and evidence related to weight status and its determinants. <http://www.noo.org.uk>

**See what Right Care is doing about obesity surgery on page 32**

**Figure 12.1: Rate of bariatric procedures per population over time by SHA.**  
**Directly standardised rate 2004/05 to 2009/10**

