JSNA Report 2013

Diabetes

Delivering meaningful, healthier, longer lives for the people of Northamptonshire
Introduction

- There are two main types of diabetes, type 1 and type 2. Type 2 diabetes is much more common. It can be preceded by a pre-diabetic state in which levels of sugar in the blood are raised, but are not yet high enough to diagnose diabetes. People with type 2 diabetes have high rates of coronary heart disease and stroke. Other complications of diabetes include kidney failure, eye disease and circulatory and neurological problems in the foot and leg.
- Diabetes is more common in socio-economically deprived communities and in Black and Asian people.
- In Everyone’s Interest, Northamptonshire’s Health and Wellbeing Strategy 2013-16, does not mention diabetes specifically, though one of the document’s three strategic outcomes is that “people have healthier lifestyles and exert greater control over their health and wellbeing”. Of the strategy’s five priorities, reducing levels of childhood obesity will contribute to a reduction in diabetes. Neither Corby Clinical Commissioning Group (CCG)’s document Shaping Healthcare Services in Corby 2013/14 nor Nene CCG’s Top Priorities mentions diabetes.

Key Points

- 31,917 people in Northamptonshire have been recorded with a diagnosis of diabetes on a primary health care disease register, a prevalence of 5.6%. This is slightly less than the average diagnosed diabetes prevalence of 5.8% for England.
- There are an estimated 6,800 Northamptonshire residents with undiagnosed diabetes. Finding and treating them is a priority.
- There are substantial differences in the recorded prevalence of diabetes between practices in Northamptonshire, suggesting more widespread under-diagnosis in some practices. The highest recorded prevalence is one patient in eleven, the lowest is one in eighty-three. Undiagnosed diabetes increases the risk of serious complications from the disease.
- The prevalence of diabetes in Northamptonshire is set to rise. Between 2013 and 2030, it will have risen from 6.9% to 8.8%.
- Over this period, increases in the number of people living in the County, along with aging of the population, mean that the number of people with diabetes in Northamptonshire will rise by more than 50%, from about 41,000 in 2013 to about 64,000 in 2030. Half of this increase, to 7.8%, will occur before 2020, and most of the extra people with diabetes will be elderly.
- If obesity levels in Northamptonshire could be maintained at the 2010 prevalence, there would be 1400 fewer people with diabetes in 2020, equivalent to 2.9% of people projected to have diabetes. By 2030, a constant prevalence of obesity would mean an estimated 4200 fewer people with diabetes, equivalent to 7% of people projected to have diabetes by that time. This underlines the importance of obesity prevention to the future of health and social services in Northamptonshire.
- There is comprehensive guidance from the National Institute for Health and Clinical Excellence on the prevention and management of diabetes.
- There are no documents available which describe how physical activity and healthy eating are promoted in Northamptonshire.
Northamptonshire has pre-diabetes patient education programmes linked to NHS Health Check. The programme includes people over 40 years old with a body mass index above 27 and risk indicators for coronary heart disease.

In 2011/12, only 60% of Corby patients, and 56% of those in Nene, received all care processes recommended by NICE. Corby is in the third quartile for England and Nene in the fourth for this measure, indicating that most practices elsewhere do better. Both CCGs saw a deterioration in the proportion of patients who had their diabetes control measured, and both show substantial variation between practices on measures of the quality of care for people with diabetes. This increases the risk of complications.

In Corby, only 51% of patients have adequately controlled diabetes, while in Nene it is 57%; this also places the patients at increased risk of complications. Overall, fewer than one in five patients with diabetes in each CCG meets treatment targets for diabetic control, blood pressure and cholesterol. Nene is in the bottom quartile of CCGs on this measure too, with Corby in the third one.

In April 2012, Northamptonshire put in place a community-based multi-disciplinary team to reduce unnecessary referrals and admissions for people with diabetes. During a pilot phase in 2011/12, there were improvements in the cost-effectiveness of prescribing, and a 48% reduction in the number of admissions of people with diabetes. Outpatient appointments for first attenders have however continued to rise, and cost £1.36m per year.

Rates of complications of diabetes in Northamptonshire are higher than average for England. People with diabetes in the County are 64% more likely to suffer a heart attack, 61% more likely to be admitted to hospital with heart failure and 30% more likely to have a stroke than local people without diabetes. These outcomes reflect the quality of management of diabetes and would be better if diabetic control and management in primary care was improved.

Deaths among patients with diabetes admitted to Northampton General Hospital were higher than expected and higher compared to comparable hospitals in England. In 2010/11 to 2011/12, 244 patients (of 6,130) with diabetes died at the hospital, 26% more than would have occurred in national mortality rates had prevailed. If the hospital’s death rate for people with diabetes had been average for England, 62 deaths would have been avoided. There could be a number of reasons for this which need further investigation.

Furthermore, inpatients with diabetes at Northampton are 29% more likely to die in hospital than those without diabetes, whereas this difference is only 7% over all hospitals; this difference is also statistically significant. This comparison leads to an estimate of 71 excess deaths at Northampton. These findings need further investigation, including of the quality of the underlying data.

Corby CCG has been recorded as having the highest rate of major amputations for diabetes in England, though inaccurate coding was found to explain this.

Commissioning for Value, a programme designed to help CCGs improve value and outcomes, showed that in 2011/12, Nene CCG spending on endocrine services, mostly diabetes, included £5.48 per head for secondary care; this comprised £2.16 per head for elective and day-case admissions and £3.30 per head on emergency admissions. Admission rates in these categories were respectively 4.8, 3.0 and 1.8 per thousand. Rates and costs for elective admissions are relatively high, in the highest quartile for England, while emergency admissions and costs are in the second-highest quartile.

Comparison with similar CCGs suggests that £769,000 could be saved from Nene CCG’s spending on elective endocrine services, and £392,000 from emergency endocrine services; these potential savings were among the smallest of the clinical areas considered. Prescribing costs could be reduced by £1.3m. However, Nene’s relatively higher rates of admission, prescribing and expenditure are partly attributable
to the deprivation of Nene relative to its peer group; once this is taken into account, the amounts available for saving may not be material.

- Corby CCG’s spending in 2011/12 on the endocrine category was £5.14 per head for secondary care; this comprised £2.26 per head for elective and day-case admissions and £2.83 per head for emergency admissions. In comparison to all CCGs, Corby shows a similar pattern to Nene: rates of and spend on elective and day-case admissions are high, in the top quartile, while rates of emergency admissions are in the third quartile and the associated expenditure is in the fourth quartile. Savings of £60,000 may be available.

- The validity of the Commissioning for Value approach needs further assessment. In any case, the results for both Nene and Corby CCGs point to only small reductions in costs from implementing change in endocrine, nutritional and metabolic commissioning. There are likely to be larger benefits from concentrating use of the approach on other clinical programmes.

- It would be worth investigating the following questions:
  o Why do some practices in Northamptonshire achieve much better results in finding and treating people with diabetes than others? How can we promote the transfer of skills and experiences to those practices performing less successfully?
  o What underlies the apparently high rates of inpatient mortality in people with diabetes at Northampton General Hospital? Have there been national or local enquiries? Are there any common features to the patients who died, such as surgery, myocardial infarction or renal failure?
  o Are the apparently high rates of amputations in Corby entirely attributable to inaccurate coding?
  o The introduction of the new diabetes multi-disciplinary team appears not to have affected the annual rate of increase in outpatient referrals to diabetic clinics. Are NICE guidelines on referral being followed? What further steps could be taken to ensure the team achieves its goals?
  o To what extent are the results of costing analysis in Nene due to the allocation of the CCG to a group made up of more affluent CCGs? To what extent are there opportunities for activity and cost reductions, given the scale of need in Northamptonshire?

Conclusions

- In common with many other places, Northamptonshire is facing a large increase in the number of people with diabetes. Reducing the size of this increase, particularly by preventing obesity, is of great strategic importance. However, there is as yet no strategy being fully implemented to promote healthy eating and physical activity and to prevent obesity in Northamptonshire.

- Primary care services are central to meeting the needs of people at risk of and already affected by diabetes. However, there are about 6,800 people with undiagnosed diabetes in Northamptonshire, whose risk of complications would be reduced by earlier diagnosis. People with diagnosed diabetes in the County usually do not receive all the care recommended by NICE to prevent progression of the disease. As a result, preventable complications of diabetes occur more often than elsewhere in England.

- Hospital diabetic services have recently been augmented by a new multi-disciplinary team. However, outpatient referrals continue to increase and both CCGs have higher rates of elective and day-case admissions for diabetes than their peer-groups.
• The limited information available on the quality of hospital services appears satisfactory. There are however indications of higher than expected inpatient mortality at Northampton General Hospital and higher than expected mortality rates for Corby CCG residents with diabetes.

Recommendations

• Prevention of diabetes should receive more strategic attention in Northamptonshire. Northamptonshire Health and Well-being Board should oversee a programme of work to prevent type 2 diabetes. This should comprise
  o An obesity strategy (see obesity JSNA section)
  o Strategies on healthy eating and physical activity (see cardiovascular disease JSNA section)
  o A programme to find and reduce risk in those at higher-risk of diabetes. This should include:
    ▪ Action to raise awareness of the risks of type 2 diabetes
    ▪ A proactive approach to identifying people at high risk (and those with undiagnosed type 2 diabetes)
    ▪ Evidence-based, quality-assured intensive lifestyle-change programmes
    ▪ Clear organisational responsibilities for local type 2 diabetes risk assessments. These could take place in primary care or community pharmacies as part of, or as a local addition to, the NHS Health Check programme, or as a self-assessment in community venues and workplaces.
    ▪ Arrangements to invite people of South Asian, Chinese, African-Caribbean and black African descent aged 25 and over for a risk assessment at least once every five years
    ▪ Encouragement for employers in public and private sector organisations to include risk assessments in their occupational health service contracts.
    ▪ Coordinated referral pathways for evidence-based and quality-assured intensive lifestyle-change programmes that cover physical activity, weight management and diet, and which teach behaviour-change techniques. Guidance is available here.
  o The pre-diabetes education programme should be developed, evaluated and rolled-out. This programme is an innovative and responsive way to prevent diabetes in those at high-risk. Its impact would be maximised by an acceleration of the NHS Health Check programme in primary care, by further evaluation to ensure the programme is working as intended and development work to tailor it more closely to identified needs.

• Primary care services for people with diabetes in Northamptonshire should be developed:
  o Further work is needed to identify the approximately 6,800 people with undiagnosed diabetes in the County. The best approach to achieving this would be to accelerate the NHS Health Check programme, which will lead to both diagnosis of diabetes and identification of those at higher risk in whom preventive interventions are appropriate.
Practices should be supported to improve the completeness of the care that they provide to people with diabetes. An important element of this is an annual review for everyone with diabetes, with close attention to monitoring of all relevant measures of risk, and prompt and effective action to reduce risk. One approach to service improvement would be to develop mentoring relationships between local practices with high performance in this field and those who are as yet less successful. CCGs should also consider the role of local diabetes coordinators in helping practices ensure that all their patients with diabetes have an annual review which lead to successful mitigation of risk of progression and complications.

- **Commissioners should review are three aspects of community and inpatient services:**
  - The apparent high levels of spending on elective and day-case treatment. These findings, from *Commissioning for Value*, need further consideration in order to assess their meaning, and their priority alongside *Commissioning for Value* findings for other programmes.
  - The wider value of a programme budgeting approach to diabetes and other long-term conditions. If Northamptonshire commissioners could see the overall shape of their investment in diabetes, including prevention, primary care, community and hospital services, they would be able to consider how to re-allocate funds in order to maximise impact.
  - The apparently high mortality rate at Northampton General Hospital. This is an important signal of service quality and needs review. The detail of the review of high amputation rates in Corby is not clear and it would be worth confirming that it fully dealt with all concerns.

- **The community-based multi-disciplinary team** is an important innovation. Its impact and outcomes should be monitored to ensure it progresses as expected.

**Key early priorities are:**

- Improving the diagnosis and management of diabetes in primary care
- Investigating the apparent high mortality at Northampton General Hospital.

This needs assessment should be read in conjunction with the reports on obesity and cardiovascular disease.
Why is diabetes important in Northamptonshire?

There are two main types of diabetes:

- **Type 1 diabetes** accounts for about 10% of cases, and often begins in childhood or early adult life. People with type 1 diabetes produce too little insulin, the hormone required for glucose to enter cells and be used to produce energy. The cause of type 1 diabetes is not known. The condition is treated by insulin injections, an appropriate diet and regular physical activity.

- **Type 2 diabetes** is much more common. It is usually first diagnosed after the age of forty years, though it is now being seen more often in obese adolescents and young people. It usually arises because obesity and lack of physical activity have made the body resistant to the effects of insulin. It is treated with a healthy diet and regular physical exercise, with medication often also required. It is more prevalent in South Asian and Black people and in people with a family member with diabetes.

Type 2 diabetes can be preceded by a pre-diabetic state in which levels of sugar in the blood are raised, but are not yet high enough to diagnose diabetes. This state does however increase the risk of complications, and often progresses to diabetes. People in this pre-diabetic state who lose weight and increase physical activity can return their sugar levels to normal and prevent complications. A study from Finland reported that an intensive lifestyle intervention in people with pre-diabetes improved diet and physical activity and halved the proportion who developed diabetes in the following three years.

People with type 2 diabetes often also have raised blood pressure and abnormal levels of cholesterol in their bloodstream. These abnormalities, often occurring in sedentary obese people, together produce a particularly dangerous mixture of risk factors, leading to especially high rates of coronary heart disease and stroke. Other complications of diabetes include kidney failure, eye disease and circulatory and neurological problems in the foot and leg.

References in this document to diabetes are to type 2 disease unless otherwise stated.

Local strategic documents do not refer to diabetes. *In Everyone’s Interest*, Northamptonshire’s Health and Wellbeing Strategy 2013-16, does not mention diabetes specifically, though one of the document’s three strategic outcomes is that “people have healthier lifestyles and exert greater control over their health and wellbeing”. Of the strategy’s five priorities, reducing levels of childhood obesity will contribute to a reduction in diabetes. Neither Corby Clinical Commissioning Group (CCG)’s document *Shaping Healthcare Services in Corby 2013/14* nor Nene CCG’s *Top Priorities* mentions diabetes.

What is the local picture?

31,917 people in Northamptonshire have been recorded with a diagnosis of diabetes on a primary health care disease register, a prevalence of 5.6%. Although this is only slightly less than the average diagnosed diabetes prevalence of 5.8% for England as a whole, the difference is statistically significant. Both Corby and Nene CCGs have prevalences of diagnosed diabetes of 5.6%. Figures 1 and 2 compare this with the total diabetes prevalence...
estimated from epidemiological surveys elsewhere; this is higher because of people with undiagnosed diabetes.

**Figure 1:** The prevalence of diagnosed diabetes and the estimated total prevalence of diabetes, Corby CCG, orange group and England, 2011/12

Source: Quality and Outcomes Framework 2011/12 and Diabetes Prevalence Model

The orange group was a set of 46 similar PCTs with an average age structure, average deprivation levels and a low population density. Northamptonshire PCT was a member of the group.

**Figure 2:** The prevalence of diagnosed diabetes and the estimated total prevalence of diabetes, Nene CCG, orange group and England, 2011/12

Source: Quality and Outcomes Framework 2011/12 and Diabetes Prevalence Model

The orange group was a set of 46 similar PCTs with an average age structure, average deprivation levels and a low population density. Northamptonshire PCT was a member of the group.

It is important to diagnose diabetes as soon as possible after its onset. Patients can then be helped to change their lifestyle, which may itself resolve the problem; they can also be offered treatment, which will reduce the risks of complications. We compared the number of people in Northamptonshire recorded by their general practitioner with diabetes to the number we would expect there to be based on epidemiological surveys. This indicated that there are about 6,800 Northamptonshire residents with undiagnosed diabetes. Finding and treating them is a priority.

Figure 3 shows the prevalence of diagnosed diabetes in Northamptonshire practices, with the practices grouped into deprivation quintiles for England. Practices in quintile 1 serve populations in the most affluent fifth of the English population. Only one practice in Northamptonshire serves a population in the most deprived quintile for England. Because diabetes is more common in deprived populations, we would expect the prevalence to be
highest in the more deprived quintiles of Figure 3. The fact that this is not the case may reflect lower ascertainment of diabetes in those practices, but the data are not conclusive.

**Figure 3: Prevalence of diagnosed diabetes by deprivation of practice population, Northamptonshire, 2011/12**

![Bar chart showing prevalence of diagnosed diabetes by deprivation of practice population.](image)

Source: Northamptonshire quality and outcomes framework

Figure 4 shows the prevalence of diagnosed diabetes in each practice in Northamptonshire, also with the practices grouped into deprivation quintiles for England. There are substantial differences in the recorded prevalence of diabetes in Northamptonshire practices. The highest recorded prevalence is one patient in eleven, the lowest is one in eighty-three. These prevalences are unstandardised – they have not been adjusted for differences in the age and sex composition of different practices, so some variation is to be expected. Practices serving a younger population would naturally have a lower prevalence of most long-term conditions. However, the average ages of practices’ registered populations do not vary substantially enough to explain the low prevalences reported by some practices. It is likely that these practices are not diagnosing, or not accurately recording, the presence of diabetes in their registered patients.
Figure 4: Recorded prevalence of types 1 and 2 diabetes, Northamptonshire general practices, 2011/12

![Prevalence Graph]

Source: Northamptonshire quality and outcomes framework

Figure 5, 6, 7 and 8 show the prevalence of both types of diabetes in the two CCGs by age and gender. They show that

- Type 2 diabetes is twenty to forty times commoner than type 1.
- Type 2 diabetes is a disease of older people, whereas type 1 often begins in childhood or adolescence.
- Both conditions are commoner in females. Because women also live longer, this means that older women with type 2 diabetes form a large and important group.
- The differences between the epidemiological patterns of diabetes in the two CCGs are not large enough to be of strategic importance.
Figure 5: Age and gender of people with type 1 diabetes, Corby CCG, 2011/12

Source: Health and Social Care Information Centre

Figure 6: Age and gender of people with type 2 diabetes, Corby CCG, 2011/12

Source: Health and Social Care Information Centre
Projected future diabetes prevalence

Because of the rising levels of obesity and the ageing of the population, the prevalence of diabetes in Northamptonshire is set to rise. Figure 9 shows estimates of the prevalence of diabetes in the County and in England, to 2030. These projections include both diagnosed and undiagnosed diabetes and are based on expected changes in the age, sex, ethnic and deprivation composition of Northamptonshire’s population. By 2030, the proportion of people with diabetes in Northamptonshire will have risen by 27%, from 6.9% to 8.8%. However, the rising and ageing population means that the number of people with diabetes in the County will rise much faster, by more than 50%, from about 41,000 in 2013 to about 64,000 in 2030. Half of this increase, to 7.8%, will occur before 2020, and most of the extra people with diabetes will be elderly. The small difference between the prevalence in Northamptonshire and in England is expected to disappear.
The projections in Figure 9 are based on an assumption that the prevalence of obesity continues to rise at the present rate. Modelling indicates that about a third of the projected rise in diabetes prevalence is because of this factor. If obesity levels in Northamptonshire could be maintained at the 2010 prevalence, there would be 1400 fewer people with diabetes in 2020, equivalent to 2.9% of people projected to have diabetes (Figure 10). By 2030, a constant prevalence of obesity would mean an estimated 4200 fewer people with diabetes, equivalent to 7% of people projected to have diabetes by that time. This underlines the importance of obesity prevention to the future of health and social services in Northamptonshire.

What inequalities are there in health status and access to services?

The most important factors increasing the risk of type 2 diabetes are:

- **Age**: the disease becomes more common as people grow older
- **Obesity:** maintaining a normal weight and being physically active are protective. Type 2 diabetes is particularly common in obese, sedentary people.

- **Deprivation:** People living in the most deprived 20% of neighbourhoods are 56% more likely to have diabetes than those in the most affluent 20%. The reasons for this are complex, reflecting partly less healthy lifestyles but also wider effects of deprivation and social exclusion.

- **Ethnicity:** Asian and Black people are more likely to develop diabetes, and tend to do so at younger ages.

Figures 11 and 12 illustrate patterns of deprivation and relevant ethnicity in Corby and Nene CCGs. The prevalence of type 2 diabetes is higher in Corby because the population is more deprived than average for England; the deprivation is associated with less healthy lifestyles and other factors which lead to the emergence of the disease. Nene’s relative affluence causes a reduced prevalence of diabetes. Also, the lower than average proportion of Northamptonshire’s population made up of Black and Asian people also reduces the prevalence. However, South Asian and Black population of the County is rising, which will influence the prevalence of diabetes in the future.

**Figure 11: Deprivation and ethnic groups at higher risk of diabetes, Corby CCG, 2011**

**Figure 12: Deprivation and ethnic groups at higher risk of diabetes, Nene CCG, 2011**
What is the evidence base for interventions? What is best practice?

The National Institute for Health and Clinical Excellence (NICE) has issued guidance on preventing type 2 diabetes: population and community-level interventions, preventing type 2 diabetes: risk identification and interventions for individuals at high risk and the management of type 2 diabetes.

NICE guidance on risk identification and interventions for individuals at high risk of type 2 diabetes made recommendations including

- Risk assessment and identification
- Matching interventions to risk
- Lifestyle-change programmes.

NICE guidance on the management of type 2 diabetes made recommendations including

- Offering structured education to every person and/or their carer at and around the time of diagnosis, with annual reinforcement and review
- Providing individualised and on-going nutritional advice from a healthcare professional with specific expertise and competencies in nutrition
- Setting a glycated haemoglobin target
- Offering lifestyle interventions and medication to help achieve and maintain the glycated haemoglobin target level.

What is the pattern of services in Northamptonshire at present?

Prevention
Type 2 diabetes is strongly associated with obesity and a lack of physical activity. Effective programmes to promote healthy eating and physical activity will help Northamptonshire residents to enjoy a healthy lifestyle, maintain a normal weight, and remain free of diabetes and many other long-term conditions. There are no documents available which describe how physical activity and healthy eating are promoted in Northamptonshire.

Northamptonshire has a pre-diabetes patient education programme linked to NHS Health Check. The programme includes people over 40 years old with a body mass index above 27 and risk indicators for coronary heart disease. Evaluation of a pilot study showed encouraging results. However, only 1.7% of the population of Northamptonshire have so far been offered NHS Health Check, which limited the reach of the programme at present.

Primary care
Primary care interventions for diabetes include

- focussed efforts to reduce individuals’ risk of developing diabetes
- the investigation of symptoms of diabetes and diagnosis of the disease
- measures to reduce cardiovascular risk in people with diabetes, such as smoking cessation advice, dietary change and lipid-lowering medication
- treatment of symptoms and complications of diabetes
- referral of patients with more complex disease.
Diabetes is usually diagnosed and largely managed in primary care. NICE has specified the care processes that patients with diabetes should receive in order to check the effectiveness of treatment, monitor their risk of cardiovascular disease and detect complications. Figures 13 and 14 show general practices’ performance with respect to these targets in Corby and Nene CCGs.

In 2011/12, 60% of Corby patients received all care processes recommended by NICE (except eye screening, which is not carried out via primary care). This was in the third quartile for England. The CCG’s practices’ performance was similar overall to that of practices in England and Wales. Some measures of diabetic care are well-covered: for example, nearly all patients received checks on blood pressure, serum creatinine (a measure of renal function) and body mass index (a measure of obesity). However, there was a sharp deterioration from the previous year in the proportion of patients who had their HbA1c measured. This test measures the level of glycated haemoglobin and indicates adequacy of control of diabetes; it is of great importance in monitoring treatment and deciding whether it needs to be intensified. In 2011/12, the proportion of patients in Corby CCG who had had their HbA1c checked in the past year fell sharply from 93% to 76%; the reasons for this are not clear. Patients with both types of diabetes were affected. There is no sign of a rise in the proportion of patients with all care processes in place.
This needs assessment was prepared by the Public Health Action Support Team on behalf of Northamptonshire County Council.
Figure 14: Proportion of patients with diabetes receiving NICE’s recommended care processes (excluding eye screening), Nene CCG and England, 2009/10 to 2011/12

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<th>Type 2</th>
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<td>England &amp; Wales</td>
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Source: Health and Social Care Information Centre
Red: less than 70% of patients
Amber: 70% to 90%
Green: More than 90%

Figure 15 and 16 show the variation in performance among the practices in each CCG. In Corby, there are fewer practices than in Nene and all manage to provide the recommended processes to more than 40% of patients.

Figure 15: Proportion of patients receiving all NICE-recommended care processes, Corby CCG, 2011/12
By contrast, Nene practices show much greater variation (Figure 16). The best do slightly better than those in Corby, providing the recommended interventions to more than 80% of their diabetic patients, but there is a set of underperforming practices who provide recommended care to fewer than a quarter of their patients with diabetes.

**Figure 16: Proportion of patients receiving all NICE-recommended care processes, Nene CCG, 2011/12**

If patients with diabetes have the checks recommended by NICE, they are less likely to experience complications. Any complications that arise can be treated at an earlier stage, often with better results. It is the complications of diabetes that damage patients' health and give rise to costs for health and social care. There will therefore be advantages for patients and for the NHS and social services from thorough and comprehensive attention to the delivery of NICE recommended treatment. Improvement should be possible: Corby is in the third quartile for England and Nene in the fourth, indicating that most practices elsewhere do better. There is particular urgency to address the underperforming Nene practices, whose patients are at substantial risk of developing complications that appropriate primary care would prevent.

Even if appropriate treatment coverage is achieved, it may not be delivered intensively enough to be fully effective. Examination of data from Northamptonshire practices indicates that there is substantial room for improvement here also. For example, in Corby CCG, only 51% of patients attain the HbA1c target of 7.5%, while in Nene it is 57%. This indicates that many patients are at increased risk of complications because their diabetes is not well-controlled. Overall, fewer than one in five patients with diabetes in each CCG meets treatment targets for HbA1c, blood pressure and cholesterol. Nene is in the bottom quartile of CCGs on this measure too, with Corby in the third one.

**Secondary care**

Referral services for people with diabetes include

- education for all with newly diagnosed diabetes
- specialist outpatient care of patients with more complex disease
- investigation and treatment of complications of diabetes such as coronary heart disease, peripheral vascular disease, neuropathy and kidney disease.

In April 2012, Northamptonshire put in place a community-based multi-disciplinary team to reduce unnecessary referrals and admissions for people with diabetes, governed by a comprehensive service specification and with appropriate outcome reporting. Patients are
referred from primary care but seen in locality centres rather than hospital outpatient clinics. The programme also supports better prescribing practice. During a pilot phase in 2011/12, there were improvements in the cost-effectiveness of prescribing, and a 48% reduction in the number of admissions of people with diabetes, although first outpatient appointments showed no change in Kettering and increased by 16% in Northampton. Steps were then taken to mitigate this effect.

The number of outpatient attendances has however continued to rise by about 10% a year (Figure 17). We cannot tell whether this would have occurred to the same extent without the introduction of the multidisciplinary team, but it is not clear that the development has achieved its goal of reducing referrals. Pre-gestational, gestational and paediatric diabetes appointments are part of the acute contract, not the community contract.

**Figure 17: Number of outpatient attendances, diabetic medicine, Northamptonshire, 2011/12, 2012/13 and 2013/14 (projected)**

![Graph showing number of referrals from 2011/12 to 2013/14]

Source: Nene and Corby CCGs
2013/14 figure extrapolated from first four months’ data.

Rates of complications of diabetes in Northamptonshire are higher than average for England. People with diabetes in the County are 64% more likely to suffer a heart attack, 61% more likely to be admitted to hospital with heart failure and 30% more likely to have a stroke than local people without diabetes. Figure 18 shows that these excess risks are greater in Northamptonshire than in England generally. These outcomes will reflect the quality of management of diabetes and would be better if the management of diabetes in primary care was improved.
What is the cost of current services?

All statements in this section of the report refer to type 1 and type 2 diabetes.

Local data

We were able to obtain 2012/13 cost data for Corby and Nene CCGs outpatient diabetic services, first and follow-up attendances. The total cost of these was £1.36m.

Total prescribing costs for drugs for diabetes in Corby CCG were £806,899 in the year to August 2013. Spending on prescriptions for items to treat diabetes in 2011/12 was £356 per adult with diabetes in Corby CCG compared to £416 across England. In Nene CCG, the corresponding figures were £7,949,227 and £412.

Commissioning for Value

Commissioning for Value is a programme designed to help CCGs improve the value of and outcomes from the services that they commission. It is a collaboration between NHS Right Care, NHS England and Public Health England. It compares each CCG with similar ones to identify areas of spending where lower costs or better outcomes should be achievable, by hypothesising the costs and outcomes if that CCG’s performance improved to equal a peer group of similar CCGs.

There is no diabetes category in Commissioning for Value, but it forms the majority of the endocrine, nutritional and metabolic problems category.

Commissioning for Value in Nene CCG

Cost data from Commissioning for Value indicate that, in 2011/12, Nene CCG spending on this category included £5.48 per head for secondary care; this comprised £2.16 per head for elective and day-case admissions and £3.30 per head on emergency admissions. Admission rates in these categories were respectively 4.8, 3.0 and 1.8 per thousand. Rates and costs for...
elective admissions are relatively high, in the top quartile for England, while emergency admissions and costs are in the third quartile.

However, and more importantly for the *Commissioning for Value* methodology, all these results were statistically significantly higher than the peer group of ten CCGs. The CCGs spending on primary care prescriptions for endocrine disorders was in the third quartile, but also significantly higher than its peer group. Nene CCG also registered as significantly worse than its peer group on the proportion of people with diabetes with adequate control, though on this measure it was again not an outlier by overall national standards.

The insight pack issued in October 2013 indicate no potential for Nene CCG to reduce mortality from endocrine disorders. The pack suggests that £769,000 could be saved from the CCG’s spending on elective endocrine services, and £392,000 from emergency endocrine services; these potential savings were among the smallest of the clinical areas considered. Prescribing costs could be reduced by £1.3m.

How valid is this approach and what does it mean? Those responsible for *Commissioning for Value* emphasise that these analyses are indicative and should be considered as a possible prompt to a deeper service review rather than conclusive in their own right. The analysis suggests that Nene CCG’s spending and outcomes are unexceptional by English standards with the exception of elective admissions, but that in comparison with its peer group, it has higher admission rates and spends more on inpatient services and primary care prescribing. However, Nene CCG is the second most deprived of the ten peers, only Southern Derbyshire being more deprived; the methodology appears to regard the peer group as homogenous and takes no account of the possibility that differences within the group’s populations, rather than imperfect commissioning, explain outliers. Interestingly, Southern Derbyshire shows a set of outlier results within the peer group similar to Nene’s.

So, to some extent, relative deprivation, higher disease prevalence and higher need explain Nene CCG’s outlier status: with higher need, it should be spending more and having more activity. Nene’s relatively higher rates of admission, prescribing and expenditure are partly attributable to the deprivation of Nene relative to its peer group; once this is taken into account, the amounts available for saving may not be material. This is supported by the absence of this category of spending in the insight pack’s value opportunities headlines.

*Commissioning for Value in Corby CCG*

*Commissioning for Value* reports Corby CCG’s spending in 2011/12 on the endocrine category as £5.14 per head for secondary care; this comprised £2.26 per head for elective and day-case admissions and £2.83 per head for emergency admissions. Admission rates in these categories were respectively 5.1, 3.4 and 1.7 per thousand. In comparison to all CCGs, Corby shows a similar pattern to Nene: rates of and spend on elective and day-case admissions are high, in the top quartile, while rates of emergency admissions are in the third quartile and the associated expenditure is in the fourth quartile. This may reflect the effect of common providers.

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1 The members are Southern Derbyshire, East and North Hertfordshire, Bedfordshire, Herts Valleys, Gloucestershire, Wiltshire, Mid Essex, Cambridgeshire and Peterborough, Oxfordshire and Somerset.
Commissioning for Value assigned Corby CCG to a different and less affluent peer group\(^2\) than Nene CCG. Corby is only significantly worse than its peer group on four measures: rates of and spending on elective and day-case admissions, and control of cholesterol and high blood pressure in diabetic people. However, the associated savings from improving these results are modest: only £60,000 from reducing elective admissions to the rates of the best CCG in the peer group.

In conclusion, Commissioning for Value analysis is of considerable interest. However, its validity needs further assessment, particularly for Nene CCG. In any case, the results for both Nene and Corby CCGs point to only small reductions in costs from implementing change in endocrine, nutritional and metabolic commissioning. There are likely to be larger benefits from concentrating on the findings of the approach for other clinical programmes.

What is the evidence of progress in developing these services?

The number of deaths for diabetic patients in Northampton General Hospital (NGH) appears higher than expected. Between 1st April 2010 and 31st March 2012 there were 6,130 inpatient admissions for diabetes, and of these 244 ended with the patient dying. This indicates that NGH had 25.6% more deaths among inpatients with recorded diabetes than would be expected. If the hospital's death rate for people with diabetes had been average for England, 62 deaths would have been avoided.

An exploration of the reasons behind this observed figure which may include coding errors and practices, severity of cases, care processes and other characteristics of the affected population is now being undertaken. Tackling issues around case fatality for common diseases is a high priority in the quality improvement programme ongoing locally.

Figures 19 and 20 illustrate how Northampton General Hospital is an outlier on these measures of excess inpatient mortality among people with diabetes. Until 2013, diabetes was recorded as a patient’s primary diagnosis, even if cause of death or reason for admission is due to other circumstances.

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\(^2\) The members are Halton, Bury, Tameside and Glossop, Telford and Wrekin, Vale Royal, St Helens, Rotherham, Mansfield and Ashfield, Warrington and Trafford.
The results for Kettering General Hospital show that mortality for inpatients with diabetes is close to expected.

For Corby CCG, the diabetic foot disease profile reports an average performance for most outcomes. However, in the period April 2009 to March 2012, there were 17 major amputations among Corby residents, significantly above the average for England, and the highest CCG rate recorded (Figure 21). Amputation rates are an important marker of the quality of diabetic services, because they are often the culmination of a long period of unsuccessful management of risk factors and complications and a high incidence can indicate wider systemic problems.
Anecdotally, the Corby finding has been ascribed to miscoding of amputations not attributable to diabetes.

Figure 21: Rates of major amputation for diabetes, clinical commissioning groups, England, with Corby CCG highlighted, 2009/2010 to 2011/12

![Graph showing rates of major amputation for diabetes.](image)

Source: Hospital Episode Statistics

Nene CCG’s rate of amputations in diabetic people is significantly below the England average, as are the rates of episodes of care and the number of days in hospital with diabetic foot disease. However, Nene CCG had significantly higher than average numbers of nights spent in hospital per episode of care for diabetic foot disease. The CCG also had a higher than average proportion of care which was for patients having more than one episode of care and a higher than average proportion of patients having more than one episode; both these suggest an unusually high frequency of repeat care.

What do service users and carers say about their needs and the services that they receive?

A survey of 100 service users in 2012 had a response rate of 40%. It showed generally high levels of satisfaction with communication, privacy and dignity, access, service information, hygiene and cleanliness. The results compared favourably with those from elsewhere, but are based on small numbers of patients and may not be representative.

What additional information is needed?

It would be worth investigating the following questions:
• Why do some practices achieve much better results in finding and treating people with diabetes than others? How can we promote the transfer of skills and experiences to those practices performing less successfully?

• What underlies the apparently high rates of inpatient mortality in people with diabetes at Northampton General Hospital? Have there been national or local enquiries? Are there any common features to the patients who died, such as surgery, myocardial infarction or renal failure?

• Are the apparently high rates of amputations in Corby entirely attributable to inaccurate coding?

• The introduction of the new diabetes multi-disciplinary team appears not to have affected the annual rate of increase in outpatient referrals to diabetic clinics. Are NICE guidelines on referral being followed? What further steps could be taken to ensure the team achieves its goals?

• To what extent are the Commissioning for Value results for Nene due to the allocation of the CCG to a group made up of more affluent CCGs? To what extent are their opportunities for activity and cost reductions, given the scale of need in Northamptonshire?

What are the recommendations to improve and support commissioning and forward planning to ensure quality of care and value for money?

Conclusions

1. In common with many other places, Northamptonshire is facing a large increase in the number of people with diabetes. On present trends, the number will increase from about 41,000 now to about 63,000 within about fifteen years, an increase of about half, and these patients will be older than the existing group. Reducing the size of this increase, particularly by preventing obesity, is of great strategic importance. However, there is as yet no strategy to promote healthy eating and physical activity and to prevent obesity in Northamptonshire.

2. Primary care services are central to meeting the needs of people at risk of and already affected by diabetes. However, there are about 6,800 people with undiagnosed diabetes in Northamptonshire, whose risk of complications would be reduced by timelier diagnosis. People with diagnosed diabetes in the County usually do not receive all the care recommended by NICE to prevent progression of the disease. As a result, preventable complications of diabetes occur more often than elsewhere in England.

3. Hospital diabetic services have recently been augmented by a new multi-disciplinary team. However, outpatient referrals continue to increase and both CCGs have higher rates of elective and day-case admissions for diabetes than their peer-groups.

4. The limited information available on the quality of hospital services appears satisfactory. There are however indications of higher than expected inpatient mortality at Northampton General Hospital and higher than expected mortality rates for Corby CCG residents with diabetes.
Recommendations

- **Prevention of diabetes** should receive more strategic attention in Northamptonshire. Northamptonshire Health and Well-being Board should oversee a programme of work to prevent type 2 diabetes. This should comprise:
  - An obesity strategy (see obesity JSNA section)
  - Strategies on healthy eating and physical activity (see cardiovascular disease JSNA section)
  - A programme to find and reduce risk in those at higher-risk of diabetes. This should include:
    - Action to raise awareness of the risks of type 2 diabetes.
    - A proactive approach to identifying people at high risk (and those with undiagnosed type 2 diabetes)
    - Evidence-based, quality-assured intensive lifestyle-change programmes.
    - Local care process targets which will bring performance at least into line with that elsewhere
    - Clear organisational responsibilities for local type 2 diabetes risk assessments. These could take place in primary care or community pharmacies as part of, or as a local addition to, the NHS Health Check programme, or as a self-assessment in community venues and workplaces.
    - Arrangements to invite people of South Asian, Chinese, African-Caribbean and black African descent aged 25 and over for a risk assessment at least once every five years.
    - Encouragement for employers in public and private sector organisations to include risk assessments in their occupational health service contracts.
    - Coordinated referral pathways for evidence-based and quality-assured intensive lifestyle-change programmes that cover physical activity, weight management and diet, and which teach behaviour-change techniques.
    Guidance is available [here](#).
  - The pre-diabetes education programme should be developed, evaluated and rolled-out. This programme is an innovative and responsive way to prevent diabetes in those at high-risk. Its impact would be maximised by an acceleration of the NHS Health Check programme in primary care, by further evaluation to ensure the programme is working as intended and development work to tailor it more closely to identified needs.

- **Primary care services for people with diabetes** in Northamptonshire should be developed:
  - Further work is needed to identify the approximately 6,800 people with undiagnosed diabetes in the County. The best approach to achieving this would be to accelerate the NHS Health Check programme, which will lead to both diagnosis of diabetes and identification of those at higher risk in whom preventive interventions are appropriate.
  - Practices should be supported to improve the completeness of the care that they provide to people with diabetes. An important element of this is an annual review for everyone with diabetes, with close attention to monitoring of all relevant measures of risk, and prompt and effective action to reduce risk. One approach to service improvement would be to develop mentoring relationships between local practices with high performance in this field and those who are as yet less successful. CCGs should also consider the role of local diabetes coordinators in
helping practices ensure that all their patients with diabetes have an annual review which lead to successful mitigation of risk of progression and complications.

- **Commissioners should review are three aspects of community and inpatient services:**
  - The apparent high levels of spending on elective and day-case treatment. These findings, from *Commissioning for Value*, need further consideration in order to assess their meaning, and their priority alongside *Commissioning for Value* findings for other programmes.
  - The wider value of a programme budgeting approach to diabetes and other long-term conditions. If Northamptonshire commissioners could see the overall shape of their investment in diabetes, including prevention, primary care, community and hospital services, they would be able to consider how to re-allocate funds in order to maximise impact.
  - The apparently high mortality rate at Northampton. This is an important signal of service quality and needs review, including of the quality of the data. The detail of the review of high amputation rates in Corby is not clear and it would be worth confirming that it fully dealt with all concerns.

- **The community-based multi-disciplinary team** is an important innovation. Its impact and outcomes should be monitored to ensure it progresses as expected.