7.20 Diabetes

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Diabetes is a major public health problem, with approximately 10% of the NHS budget spent on diabetes care, this equates to over £25,000 being spent on diabetes every minute. 90% of adults with diabetes have Type 2 or adult onset diabetes. Unhealthy diet, low physical activity and obesity are major contributors to Type 2 diabetes.

7.20.1 Epidemiology of diabetes in Barking and Dagenham

In 2015 there were 11,013 people aged 17 years or older who had been diagnosed with diabetes and included in GP registers in NHS Barking and Dagenham CCG, this equals 7.3% of this age group compared to 6.4% for England. This is a 4.0% rise on the March 2014 figure (10,629) and a 31.9% rise on the March 2010 figure (8,349). This large rise is likely to be mostly due to increased detection. However this is still likely to be an underestimate of the actual number of people with the disease, the prevalence of which is influenced by levels of obesity and the frequency of physical activity. There will be at least 14,000 people living with diabetes in this borough by 2030 (JSNA, 2011) so resource planning needs to allow for an inevitable rise in numbers. Figure 7.20.1 illustrates the prevalence of diagnosed diabetes in adult under 17 for Barking & Dagenham (local), Comparator CCGs, London Strategic Clinical Network (SCN) and England, 2014/15.

Figure 7.20.1 Prevalence of diagnosed diabetes in adult under 17, Barking & Dagenham (local), Comparator CCGs, London Strategic Clinical Network (SCN) and England, 2014/15

The prevalence of diagnosed diabetes in Barking and Dagenham varies from 3.67% to 12.5% between GP practices in the borough as of March 2015 and is illustrated in Figure 7.20.2.

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This variation is partly caused by different age structures in each practice: the older the population, the more diabetes. It is a particularly large health problem in Dagenham and in the Whalebone and Chadwell Heath wards, with higher prevalence and admission rates in these localities than in the borough as a whole\(^5\). However, the ratio of recorded versus expected prevalence at practice level varies from 0.85 – 2.56, suggesting that some of the difference in prevalence may be due to differences in recording.

Although diabetes crosses the entire age range from new born to extreme old age the highest numbers of Type 2 diabetics in the borough are in the age group 51 to 65. There are very few people under the age of 30 years. People affected by diabetes are often affected by other illnesses at the same time, especially as they age. Nationally, estimated rates of diabetes in those aged 60 years and over are 14%\(^3\).

Figure 7.20.3 illustrates age and gender of people with Type 2 diabetes in Barking & Dagenham in 2012/13 reported by National Diabetes Audit.

\(^{5}\) Locality Networked Services, Health Needs Assessment, NHS Barking and Dagenham (2010)
Figure 7.20.3 Age and gender of people with Type 2 diabetes in Barking & Dagenham

![Figure 2: Age and gender of patients with Type 2 diabetes in NHS Barking and Dagenham CCG](image)

Source: National Diabetes Audit (2012/13)

Figure 7.20.4 shows the trend in prevalence of Quality and Outcomes Framework (QOF) recorded diabetes in the population registered with GP practices aged 17 and over in Barking and Dagenham, London and England from 2010/11 to 2014/15.

Figure 7.20.4 Prevalence of Diabetes in the population registered with GP practices aged 17 and over in Barking and Dagenham, London and England from 2010/11 to 2014/15

<table>
<thead>
<tr>
<th>Year</th>
<th>B&amp;D</th>
<th>London</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010/11</td>
<td>6.18</td>
<td>5.36</td>
<td>5.54</td>
</tr>
<tr>
<td>2011/12</td>
<td>6.42</td>
<td>5.59</td>
<td>5.76</td>
</tr>
<tr>
<td>2012/13</td>
<td>6.83</td>
<td>5.82</td>
<td>6.01</td>
</tr>
<tr>
<td>2013/14</td>
<td>7.27</td>
<td>6.00</td>
<td>6.21</td>
</tr>
<tr>
<td>2014/15</td>
<td>7.30</td>
<td>6.14</td>
<td>6.37</td>
</tr>
</tbody>
</table>

Source: HSCIC

Prevalence of diabetes (all types) by quintile for 17+ years old population of Barking and Dagenham by wards in 2015 are illustrated in Figure 7.20.5.
Figure 7.20.5 Diabetes (all types) prevalence (%), 17+ years old, May 2015

Percentage of residents recorded as having Diabetes (August 2016), LSOA

Legend
LSOA percentage
- 0.4% - 2.9%
- 3% - 5.3%
- 5.4% - 8.4%
- 6.5% - 8.1%
- 8.2% - 11.2%

Source: Health Analytics, data captured 16th August 2016
7.20.2 Diabetes mortality

In Figures 7.20.6 and 7.20.7 (‘a’ and ‘b’) diabetes annual mortality trends, directly standardised per 100,000 of population, for males and females in Barking and Dagenham, London and England from 2005 to 2014 are illustrated. Figure 7.20.6 shows there has been a slight decline in mortality rate in B&D but the gap in mortality rate between B&D is widening compared to London and England. Figure 7.20.7a shows a decline in diabetes mortality rate for male but for female (Figure 7.20.7b) it has increased. Dashed line represents the linear trendline of diabetes mortality prevalence in Barking and Dagenham.

Figure 7.20.6: Diabetes mortality annual trend, directly standardised rate per 100,000 population, all ages Barking and Dagenham, London and England, 2005-2014

Figure 7.20.7 Diabetes mortality by gender; a) male and b) female, directly standardised rate per 100,000 populations, all ages Barking and Dagenham, London and England, 2003-2013

(a) Male
Female

Inequalities in prevalence of diabetes

Type 2 diabetes usually develops in adults of middle age or among older people but in South Asian and African-Caribbean populations, the onset may be as young as the age of 25 years. People of South Asian origin (Indian, Bangladeshi, and Pakistani) in particular, tend to have a higher prevalence of diabetes than other ethnic groups. Type 2 diabetes is up to six times more likely in people of South Asian descent and up to three times more likely in African and African-Caribbean people. Community mapping (2015) found that an estimated 14.6% and 18.1% of the borough’s population is South Asian and African/African-Caribbean respectively.

Early detection and management of diabetes

Many people have unexplained symptoms including thirst, passing more urine and tiredness for a number of years prior to a formal diagnosis of diabetes. Academic studies have shown that even before this phase, sugar handling in the body is beginning to deteriorate and basic tests might be able to confirm the diagnosis. The NHS Health Check (see section in JSNA) has the ability to detect undiagnosed diabetes and should be offered to all people over 40 years old who are otherwise well.

What is most important in diabetic management?

Blood pressure and blood sugar control in diabetes are essential. A national study showed that the benefit of good blood pressure control in patients exceeds even the benefits of tight blood sugar control in terms of risks and complications. Hence, the two most important steps in preventing diabetic blindness, limb amputations, diabetic heart disease and renal failure including dialysis are lifelong good control of blood pressure and blood sugar.

A local focus group found that many patients had not been informed about what their target levels were and so could not actively participate in their own care. Others saw their

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7 LBBD community mapping (2015)
results – e.g. glucose control or cholesterol – and thought them high but their medications were not changed and they were not given any instructions.

Research by Bottle\(^9\) found that there is a small but significant correlation between the quality of primary care diabetes care, especially sugar (glycaemic) control, and the rate of hospital admissions.

**Blood pressure control in diabetes**

Current guidance states that the blood pressure in people with diabetes should be around 130/85 or less\(^10\). Data from QOF 2012/13 on blood pressure (BP) control in patients with diabetes shows the percentage of patients with diabetes whose blood pressure was controlled to a level of 140/80 or better was 66%. Data from 2015 shows that there is substantial variation between practices, from 40% to 95%.

![Figure 7.20.8: Blood pressure of patients diagnosed with diabetes, Barking and Dagenham GP practices, April 2015](image)

Exception Reporting is when a patient is removed from the necessity to receive this aspect of care by the practice – reasons may include the patient actively refusing the treatment, being terminally ill etc. Some exceptions are regarded as invalid.

Source: Quality Management and Analysis System (QMAS), 2012

Hence, two-thirds of all patients have inadequately controlled blood pressures. Those with Type 1 disease do have lower blood pressures but this is likely to reflect a different stage in their disease and a different target. Those with established kidney, eye or heart disease have a lower target for their blood pressure and should be managed much more aggressively.

**Sugar control in diabetes**


Measuring HbA1c levels gives an assessment of the quality of blood sugar control over the preceding 10 or so weeks, in comparison with blood glucose measurements which indicate the blood sugar level at a particular moment in time. NICE guidance advises that blood sugar should be controlled to aim for an HbA1c level of 6.5% (48 mmol/mol). This is acknowledged to be difficult and the GP Quality and Outcomes Framework gives payment for various levels of control with all diabetics expected to be below 9% (75 mmol/mol). If all diabetics are considered (including not yet diagnosed and the ones exception reported by GPs) then only around 64% are controlled at the HbA1c level of 8% (64 mmol/mol).

Even at the much less strict target of 9%, only three out of four (74%) of the borough’s diabetics had their disease controlled to this level. This does not take into account those people with diabetes who have not yet been diagnosed and treated.

This suggests variation in how well individual practices are managing diabetes patients, and identifies opportunities for improving control and decreasing complications including hospital admissions. It would appear that practices need to consider their entire practice population not just the people who attend frequently.

7.20.5 Care processes and treatment targets\textsuperscript{11}

The National Institute for Health and Care Excellence (NICE) recommends nine care processes for diabetes. These are five risk factors (body mass index, blood pressure, smoking, glucose levels (HbA1c) and cholesterol) and four tests to identify early complications (Urine Albumin Creatinine Ratio, serum creatinine, foot nerve and circulation examination and eye screening (held by NHSDES and not included in the data presented)). Controlling the risk factors helps a person with diabetes reduce his or her future risk of developing diabetic complications.

Data on the achievement of the eight care processes and three treatment targets are taken from the National Diabetes Audit (NDA). Participation in the 2014/15 audit was 54.9% in England. This has significantly reduced from previous years. Participation of GP practices within CCGs was variable and ranged from 0% to 100%. This may be due to the varied levels of support for participation offered to GP practices by CCGs following the increased level of complexity of registration and submission imposed by the new Information Governance "Opt in" requirements.

Given that participation is voluntary and in many cases low, participating practices do not necessarily constitute a random sample of the CCG and may not be representative of the CCG. For this reason, data on the achievement of eight care processes and three treatment targets are only presented by GP practice. Data for type 1 and type 2 diabetes have been combined. The GP participation rate in NHS Barking and Dagenham CCG was 7.5% (only 3 practices participated).

At GP practice level in NHS Barking and Dagenham CCG, the percentage of patients receiving all eight care processes ranged from 7.5% to 39.7%, very low compared to the England average of 57.5%.

At GP practice level in NHS Barking and Dagenham CCG, the percentage of patients meeting all three treatment targets ranged from 36.7% to 47.9%. In England, it was 39.8%.

Three treatment targets

The individual achievements of the three treatment targets are available from both the NDA and QOF while the achievement of all three treatment targets is only available through the NDA. Given this years’ low participation in the NDA and variability of participation by CCG, QOF data have been used to present the achievement of individual treatment targets at CCG level (Figures 7.20.8 to 7.20.10).

Note: there are some differences in patient inclusion and duration of review period that may give rise to differences in the QOF and NDA data. QOF only includes patients aged 17 years and over recorded with diabetes whereas the NDA includes all ages. QOF is reported by financial year whereas the NDA is collected over a 15 month period.

Figure 7.20.8 People with diabetes aged 17 years and over whose last HbA1c (measured in the preceding 12 months) is 59mmol/mol or less, DM007, Barking & Dagenham (local), Comparator CCGs, SCN and England, 2014/15

Figure 7.20.9 People with diabetes aged 17 years and over whose last blood pressure (measured in the preceding 12 months) is 140/80 or less, DM003, Barking & Dagenham (local), Comparator CCGs, SCN and England, 2014/15
Figure 7.20.10 People with diabetes aged 17 years and over whose last cholesterol (measured in the preceding 12 months) is 5mmol/L or less, DM004, Barking & Dagenham (local), Comparator CCGs, SCN and England, 2014/15

Foot care

Figure 7.20.11 People with diabetes aged 17 years and over who received a foot examination and risk classification within the preceding 12 months, DM012, Barking & Dagenham (local), Comparator CCGs, SCN and England, 2014/15

Figure 7.20.12 Additional risk of amputations for people with diabetes, Barking and Dagenham and England, 2010/11-2012/13

Among people with diabetes in NHS Barking and Dagenham CCG, the additional risk of a major amputation during the three-year follow up of the 2009/10 audit was 160.3% compared to 445.8% for England and for a minor amputation was 1514.1% compared to 753.5 % for England.

12 Ibid
National Diabetes Foot Care Audit (NDFA)\textsuperscript{13}

People with diabetes have annual foot checks for lower limb nerve damage or impaired circulation which can cause foot ulcers which in turn can lead to lower limb amputations. However, while the NDA has included data on annual foot checks and rates of amputations since its inception, until now, there has been no measurement system for the development and management of foot ulcers. The National Diabetes Foot Care Audit (NDFA) commenced in 2014/15 and can provide measurements as to whether the NICE recommended clinical pathways are in place locally and how effective they are in managing foot ulcers. For more information go to www.hscic.gov.uk/footcare.

One of the audit findings was that patients who were seen by a specialist foot care service within two weeks of first assessment by a professional, have higher rates of ulcer healing than those seen later (Figure 7.20.13).

Figure 7.20.13 Proportion of patients ulcer free at 12 weeks, split by time to first assessment by a specialist foot care service, 2014/15, England

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure7.20.13.png}
\caption{Proportion of patients ulcer free at 12 weeks, split by time to first assessment by a specialist foot care service, 2014/15, England}
\end{figure}

\textit{Source: National Diabetes Foot care Audit, 2014/15, Copyright © 2016, Health and Social Care Information Centre. All rights reserved.}

7.20.6 Additional risk of complications\textsuperscript{14}

A person with diabetes has a higher risk of cardiovascular complications (heart attack, angina, heart failure and stroke) and end stage kidney disease. The chart below compares the additional risk of complications for a person with diabetes to people without diabetes in the same CCG over a three year period. The figures have been adjusted to allow for the local variations in the age and sex of the population (Figure 7.20.14).

\textsuperscript{13}Ibid
\textsuperscript{14}Ibid
Figure 7.20.14 Comparison of the additional risk of complications for people with diabetes, Barking & Dagenham and England, 2010/11-2012/13

Among people with diabetes in NHS Barking and Dagenham CCG the risk of a stroke was 86.2% higher and the risk of a heart attack was 111.5% higher compared to people without diabetes during the three-year follow up of the 2009/10 audit.

7.20.7 Understanding your disease and self-management

The local focus group felt that all patients with a diagnosis of diabetes should be encouraged to attend disease knowledge and self-management sessions (The DESMOND, The Diabetes Education and Self-Management for Ongoing and Newly Diagnosed course). Currently, many patients are unaware of the sessions. Research has shown these to be highly cost effective at around £2,000 per Quality Adjusted Life Year Gained – more cost effective than most health care interventions. The National Diabetes Audit for 2012/13 reports that, of 588 people diagnosed with diabetes in the participating practices, less than 100 were offered structured education and only were recorded as attending a programme.

7.20.8 Quality of care indicators for diabetes

For assessing diabetes care the following eight indicators from Quality Outcomes Framework (QOF) are used. These are all indicators where higher rates indicate better care.

1. Good blood sugar control in people with diabetes
2. Good blood pressure control in people with diabetes
3. Good cholesterol control in people with diabetes
4. Foot check
5. Tested for protein in the urine
6. Flu vaccination
7. Eye screening
8. BMI recorded in the previous 15 months

Practices that are 95% likely to be lower than the England benchmark are referred to as outliers. In terms of indicators showing the highest number of outlier practices, worst are measures 1 (19 practices significantly worse than England rates), and 5 (16 practices significantly worse than England rates).
7.20.9 Hospital admissions for diabetes

Diabetes UK report that around one in seven hospital beds are occupied by someone with diabetes. There is a very high rate (in the top 10% in London) of emergency admissions for diabetes in Barking and Dagenham. The rate of planned admissions is also high. This suggests that insufficient support and care is occurring in the community and instead, care is hospital focussed.

Table 7.20.1 - Rate of Emergency Diabetic Admissions per 100 on the diabetes register (2010/11)

<table>
<thead>
<tr>
<th></th>
<th>Rate of admission %</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>1.6</td>
</tr>
<tr>
<td>London</td>
<td>1.6</td>
</tr>
<tr>
<td>Barking &amp; Dagenham</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Source: NHS comparators (2010/11 data)

The indirectly standardised rate of complications associated with diabetes including emergency admissions for ketoacidosis and lower limb amputation, is 7.8 per 100 people with diabetes in Barking and Dagenham, This is the highest rate of any London CCG, and comparable with rates in the north of England, where rates are much higher than in the south.\(^{15}\)

People with diabetes in NHS Barking and Dagenham CCG were 47.8% more likely to have a myocardial infarction, 45.6% more likely to have a stroke, 86.3% more likely to have a hospital admission related to heart failure and 31.8% more likely to die than the general population in the same area.\(^{16}\) In persons aged 1 to 74 years, 5.2 years of life per 10,000 population are lost due to mortality from diabetes.

7.20.10 Quality of care indicators for diabetes – relationship to ambulatory sensitive admissions

In Barking & Dagenham, the twelve practices with no outliers (i.e. none of the eight QOF indicators were significantly below England levels) had a diabetes related emergency admission rate of 14.8 per 1,000. This compares to a rate of 17.2 per 1,000 in practices with at least one outlier rating. There is also a modest correlation (0.22) between diabetes related emergency admissions and the number of outliers the practice has on the QOF diabetes care indicators.

Effective management of chronic conditions in primary care is important in reducing complications or avoidable (ambulatory sensitive) hospital admissions.

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7.20.11 Economic impact of diabetes

Barking and Dagenham continues to have relatively high expenditure per patient and relatively poor outcomes, in terms of blood sugar control. This shows that existing resources need to be better managed.

Figure 7.20.15 Total spend on prescribing in people with diabetes compared with blood sugar control for NHS Barking and Dagenham, 2011/12

Recommendations for Commissioners

Industrial Scale approaches to obesity are the only interventions that can halt the year on year increase in number of cases of Type 2 diabetes. The Health & Wellbeing Board needs to ensure that sufficient interventions are commissioned to meet the increasing need related to demographic increases and rising levels of obesity.

There is still a moderate proportion of undiagnosed diabetes in the borough and more case finding is needed. Diabetes screening as part of the NHS Health Check programme will help to find undiagnosed diabetics.

The Health & Wellbeing Board, CCG and NHS England need to ensure that guidelines are followed to detect people with diabetes on other disease registers e.g. hypertension register.

The number of patients being referred and attending education and self-help courses like DESMOND needs to be audited and any flow limitations identified.

Many patients with diabetes are not having all their checks performed annually. The CCG and NHS England need to ensure that processes are in place to ensure all aspects are performed annually and the results reviewed by the responsible clinician.

The level of exception reporting remains too high and so, the CCG and NHS England need to seek assurance that this is justified e.g. for terminal illness etc.

There is evidence that diabetes control as measured by HbA1C and hypertension could be improved, which will result in fewer complications such as hospital admissions and disability. Improving diabetes control, at a basic level, should be seen as a major priority to avoid deaths and disability. All interested parties, including the CCG, NHS England and The Health & Wellbeing Board should keep this under review.