Diabetes

Summary
- The vast majority (approximately 80%) of diabetes is preventable. The cost of treating this primarily preventable condition is very high: 10% of the NHS budget in England and Wales, which is £1.5 million every hour or £25,000 every minute.
- There are 57,092 people in Hampshire with diabetes, and a further 13,000 who have diabetes but have not yet been diagnosed. By 2020, there may be 87,000 people in Hampshire with diabetes.
- There are increasing numbers of children with both Type 1 diabetes and Type 2 diabetes (albeit numbers are still low). Approximately 500 children (under 16) have diabetes in Hampshire, 485 of whom have Type 1 diabetes.
- 46.5% of people with diabetes in Hampshire are still not getting all of the 9 key care processes at annual review, or are not achieving national targets for blood sugar, blood pressure and cholesterol levels, resulting in increasing numbers of people being admitted to hospital for treatment.
- 70.5% of Hampshire GP practices are now submitting data to the annual National Diabetes Audit which is an improvement, but we should be aiming for 100%.
- The trend in people being admitted to hospital because of a condition caused by their diabetes (for example heart attack, heart failure or stroke) has increased significantly in Hampshire and nationally over the last 5 years – up from 19,134 admissions in 2008/09 to 26,718 in 2011/12, an increase of 40% in just three years.
- Diabetes is very strongly related to deprivation. The most deprived fifth of people living in Hampshire are more likely to have diabetes, and three to five times more likely to develop serious complications and be admitted to hospital because of their diabetes, than the least deprived fifth.

Recommendations
- We need to do more to prevent people from developing diabetes, starting with supporting families during pregnancy, through the early years and beyond.
- This requires a multi-agency, multi-partner strategic approach that recognises that how and where we live our lives are important factors from ensuring the environment in which people live is conducive to a physically active life (such as adequate and safe green spaces, consideration of planning applications of fast food outlets), to supporting children and families to be healthy in the early years, to linking people who develop diabetes in improving their lifestyles, to ensuring diabetes services provide quality care.
- We need to focus on reducing inequalities in diabetes, by better targeting support to prevent the onset of diabetes in people most at risk and support self-management of diagnosed diabetes.
- CCGs should ensure all GP practices submit to the National Diabetes Audit, and use these data to optimise the proportion of people with diabetes receiving all 9 key care processes.
- CCGs should be aiming to be in the top quartile for the proportion of people with diabetes achieving HbA1c, blood pressure and cholesterol targets.
- CCGs should review their commissioned diabetes services to ensure they are integrated services as described by the NHS Diabetes report "Best practice for commissioning diabetes services. An integrated care framework."
Diabetes

1. Introduction

Diabetes is a common and serious life-long health condition. There are 3 million people diagnosed with diabetes in the UK and an estimated 850,000 people who have the condition but don’t know it. By 2025 it is estimated that five million people in the UK will have diabetes. Most of these cases (around 90%) will be Type 2 diabetes, because of the ageing population and rapidly rising numbers of overweight and obese people.\(^1\)

Diabetes is a condition where the amount of glucose in the blood is too high. Good diabetes management has been shown to reduce the risk of complications. But when diabetes is not well managed, it is associated with serious vascular complications including heart disease, stroke, blindness, kidney disease and amputations leading to disability and premature death. There is also a substantial financial cost associated with diabetes care as well as to the lives of people with diabetes. By the time they are diagnosed, half of the people with Type 2 diabetes show signs of complications. Complications may begin five to six years before diagnosis and the actual onset of diabetes may be ten years or more before clinical diagnosis.\(^1\) Compared to people of a similar age, people with Type 1 and Type 2 are 2.6 and 1.6 times, respectively, more likely to die prematurely. This results in 24,000 excess deaths per year in England.\(^2\)

There are different types of diabetes. The most common forms are:

- Type 1 diabetes
- Type 2 diabetes
- Gestational diabetes

1.1 Type 1 diabetes

Type 1 diabetes develops when the insulin-producing cells in the body have been destroyed and the body is unable to produce any insulin. Nobody knows for sure why these insulin-producing cells have been destroyed but the most likely cause is the body having an abnormal reaction to the cells. Type 1 diabetes can develop at any age but usually before the age of 40, and especially in childhood. Type 1 diabetes accounts for between 5 and 15% of all people with diabetes and is treated by daily insulin injections, a healthy diet and regular physical activity. Nothing can be done to prevent Type 1 diabetes developing.

1.2 Type 2 diabetes

Type 2 diabetes develops when the body can still make some insulin, but not enough, or when the insulin that is produced does not work properly (known as insulin resistance). Type 2 diabetes usually appears in people over the age of 40, though in South Asian and black people, who are at greater risk, it often appears from the age of 25. It is also increasingly becoming more common in obese children, adolescents and young people of all ethnicities. Type 2 diabetes accounts for

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between 85 and 95% of all people with diabetes and is treated with a healthy diet and increased physical activity. In addition to this, oral diabetes drugs and/or insulin are often required. It has been estimated that the vast majority (up to about 90%) of Type 2 diabetes could be prevented through being a healthy weight (not overweight) and being adequately physically active.

1.3 Gestational diabetes
Gestational diabetes is a type of diabetes that arises during pregnancy (usually during the second or third trimester). In some women, it occurs because the body cannot produce enough insulin to meet the extra needs of pregnancy. In other women, it may be found during the first trimester of pregnancy and in these women, the condition most likely existed before the pregnancy. Gestational diabetes affects up to 5% of all pregnancies. Women who are overweight or obese are at a higher risk of gestational diabetes. The lifetime risk of developing Type 2 diabetes after gestational diabetes is at least 7%.

1.4 Children with diabetes
The majority of children with diabetes have Type 1 diabetes, but an increasing number are now developing Type 2 diabetes. Children most at risk of Type 2 diabetes are those between 10-20 years; and of non-white European descent who have a close family member with Type 2 diabetes.

2. Diabetes in Hampshire

2.1 Prevalence of diabetes
- During 2011/12 there were 57,092 people over the age of 17 known to have diabetes in Hampshire (type 1 and Type 2 diabetes) (figure 1 and table 1). This is 5.3% of this population and is similar to the national average of 5.8%.
- Approximately 85% of these people will have Type 2 diabetes, with 15% having Type 1 diabetes.
- The percentage of people with diabetes in Hampshire has risen steadily over recent years, in line with the national trend. The prevalence of diabetes in Hampshire was 5% in 2009/10, 5.3% in 2011/12 and national projections have estimated that it could reach 7.6% (87,000 people) by 2020. This increase in prevalence of diabetes is seen in all of Hampshire’s five CCGs.
- There are people living with diabetes who have not yet been diagnosed with this condition. National estimates have been made of the proportion of undiagnosed diabetes, and figure 2 shows that the ratio of recorded to expected diabetes for each of Hampshire’s five CCGs is lower (worse) than the national average. The Hampshire ratio of recorded to expected diabetes is 0.76 compared to 0.88 for England, suggesting there may be an additional 24% of people with undiagnosed diabetes in Hampshire to add to the 57,092 people known to have diabetes. This would be an additional 13,700 people.
- Prevalence of diabetes varies by age group, prevalence increasing with age (table 2). Approximately 15.5% of men and 12.5% of women in Hampshire over

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3 Public Health England diabetes prevalence model
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the age of 65 will have diabetes. Table 2 shows the estimated number of people with diabetes by age group for each CCG.

- It is harder to get an accurate estimate of the number of children with diabetes, as GP diabetes practice registers only record people over the age of 17 with diabetes. Paediatric units in acute trusts hold accurate data on the numbers of children being treated for diabetes in those units, but these data are by provider, not by CCG. There are almost 23,000 people under the age of 17 with diabetes in England, amounting to approximately 1 in every 600 children. 97% have Type 1 diabetes, 1.5% have Type 2 and 1.5% are recorded as ‘other’. Applying this prevalence to Hampshire means approximately 500 children in Hampshire have diabetes, 485 of whom have Type 1 and 15 have Type 2/other diabetes. The breakdown by CCG is (very approximately):
  - 70 children in Fareham and Gosport
  - 80 children in North East Hampshire and Farnham
  - 80 children in North Hampshire
  - 77 children in South Eastern Hampshire
  - 200 children in West Hampshire

Please note these are very rough estimates and should be used as guidance only.

Figure 1: prevalence of diabetes in people age 17+, by CCG
Table 1: number and percentage of people age 17+ with diabetes in Hampshire, 2011/12

<table>
<thead>
<tr>
<th>CCG</th>
<th>Number</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>2566436</td>
<td>5.8%</td>
</tr>
<tr>
<td>South Central SHA</td>
<td>176283</td>
<td>5.0%</td>
</tr>
<tr>
<td>Hampshire</td>
<td>57092</td>
<td>5.3%</td>
</tr>
<tr>
<td>Fareham and Gosport CCG</td>
<td>9120</td>
<td>5.7%</td>
</tr>
<tr>
<td>North East Hampshire and Farnham CCG</td>
<td>8512</td>
<td>4.9%</td>
</tr>
<tr>
<td>North Hampshire CCG</td>
<td>9258</td>
<td>5.4%</td>
</tr>
<tr>
<td>South Eastern Hampshire CCG</td>
<td>9882</td>
<td>5.8%</td>
</tr>
<tr>
<td>West Hampshire CCG</td>
<td>21947</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

3. Projected service use and outcome in 3-5 years and 5-10 years

By 2020 it is estimated that the prevalence of diabetes in Hampshire could be 7.6% (up from 5.3% in 2011/12). This equates to approximately 87,000 people. The increasing numbers of older people combined with the increasing number of obese and overweight people are driving the increasing prevalence of diabetes.

Figure 2: ratio of recorded to expected prevalence of diabetes by CCG, 2011/12

*Source: APHO GP practice profiles, 2011/12*
Table 2: number of men and women estimated to have diabetes by age group (Type 1 and Type 2), by CCG (based on national age estimates)

<table>
<thead>
<tr>
<th>Age</th>
<th>Prevalence of diabetes in England (%)</th>
<th>Number of people with diabetes based on England prevalence by age group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fareham and Gosport CCG</td>
<td>North East Hampshire and Farnham CCG</td>
</tr>
<tr>
<td>16–34</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>16–34</td>
<td>1.8</td>
<td>2.1</td>
</tr>
<tr>
<td>35–54</td>
<td>9.4</td>
<td>6.6</td>
</tr>
<tr>
<td>55–64</td>
<td>11.1</td>
<td>8.0</td>
</tr>
<tr>
<td>65–74</td>
<td>15.2</td>
<td>12.2</td>
</tr>
<tr>
<td>75+</td>
<td>15.9</td>
<td>13.2</td>
</tr>
</tbody>
</table>

4. Current services in relation to need

Someone with diabetes is likely to need a wide variety of services during their lifetime with the disorder. The first year after diagnosis is the period when the foundations of diabetes care need to be laid. A person with diabetes needs to be equipped with the knowledge and skills to self-manage their condition effectively in partnership with their professional advisers. Ongoing care comprises a regular cycle of recall, review, renegotiation of an agreed care plan and goal setting. Most people who live with diabetes for more than a few years will encounter events that require additional, usually specialist, management. These ‘events’ range from physiological changes such as pregnancy through to non-diabetes-related hospital admission to new long-term complications of diabetes and long-term care for disability. Once stability has been re-established, continuing care needs to be resumed.4

4.1 Primary care management

- Figure 3 shows that the percentage of people achieving HbA1c (blood sugar level) of ≤ 7.5% is lower than the national average of 69.9% in Fareham and Gosport (69.1%) and West Hampshire (69.5%) CCGs, and higher than the national average in the other three CCGs. The percentage of people achieving the blood pressure target of ≤140/80 was lower than the national average of 70.7% in Fareham and Gosport (69.6%), North East Hampshire and Farnham (68.4%) and West Hampshire (68.7%). The percentage of people achieving the cholesterol target of ≤ 5 mmol/l was the same as or higher than the national average of 81.7% in all CCGs. There are no trend data available for these indicators because they have changed over the last few years as QOF has been revised.

- Another useful indicator is the proportion of people with diabetes receiving all 9 key care processes. These data come from the National Diabetes Audit. Not all GP practices in Hampshire submit data to the audit, though participation rose from 63.3% in 2009/10 to 70.5% of practices in 2010/11. Figure 4 shows the

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The overall proportion of people receiving all 9 care processes as well as each individual care process. Only 53.5% of people with diabetes in Hampshire received all 9 care processes as part of their annual diabetes review, though this is an increase of nearly 1% from the previous year. Hampshire was in the bottom half of all PCTs in England for every indicator except eye screening. The proportion of people receiving some indicators has worsened between 2009/10 and 2010/11, notably smoking review which has dropped by nearly 3%.

Figure 3: percentage of people with diabetes achieving HbA1c, blood pressure and cholesterol targets by CCG, 2011/12
Figure 4: Percentage of all patients in Hampshire PCT receiving NICE recommended care processes by care process type, 2010/11

<table>
<thead>
<tr>
<th>Care Process recorded</th>
<th>Percentage of registered patients in PCT (including RAG Score)</th>
<th>Percentage point change since 2009-2010</th>
<th>Median score across all PCTs</th>
<th>National quartile ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Care Processes*</td>
<td>53.5%</td>
<td>-0.89%</td>
<td>55.5%</td>
<td>3</td>
</tr>
<tr>
<td>Blood Creatinine</td>
<td>92.0%</td>
<td>-0.29%</td>
<td>93.1%</td>
<td>3</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>94.8%</td>
<td>-0.03%</td>
<td>95.2%</td>
<td>3</td>
</tr>
<tr>
<td>BMI</td>
<td>89.0%</td>
<td>-0.80%</td>
<td>90.0%</td>
<td>4</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>91.0%</td>
<td>-0.63%</td>
<td>91.7%</td>
<td>3</td>
</tr>
<tr>
<td>Eye Screening</td>
<td>82.7%</td>
<td>+0.98%</td>
<td>82.4%</td>
<td>2</td>
</tr>
<tr>
<td>Foot Exam</td>
<td>84.4%</td>
<td>+0.23%</td>
<td>84.5%</td>
<td>3</td>
</tr>
<tr>
<td>HbA1c**</td>
<td>92.0%</td>
<td>-0.22%</td>
<td>92.9%</td>
<td>3</td>
</tr>
<tr>
<td>Smoking Review</td>
<td>84.3%</td>
<td>-2.86%</td>
<td>85.7%</td>
<td>3</td>
</tr>
<tr>
<td>Urinary Albumin</td>
<td>72.6%</td>
<td>+2.89%</td>
<td>76.3%</td>
<td>3</td>
</tr>
</tbody>
</table>

*People registered with diabetes receiving all nine key processes of care processes
**For patients under 12 years of ages, ‘all care processes’ is defined as HbA1c only as other care process are not recommended in the NICE guidelines for this age group.
RAG (Red-Amber-Green) score key: ■ <70% ■ 70% - 90% ■ >90%

4.2 Hospital admissions where diabetes is primary (main) reason for admission

4.2.1 Elective admissions

- There were 4,935 admissions to hospital in Hampshire where diabetes was the reason for admission (primary diagnosis) during the two year period from 2009/10 – 2011/12. This equates to a rate of 115 per 100,000 population. Figure 5 and table 3 show the number and rate of elective and emergency admissions for each CCG.
- The rate of elective admissions was highest in North Hampshire CCG (163 admissions per 100,000 population) and lowest in Fareham and Gosport CCG (21 admissions per 100,000 population). The very high rate in North Hampshire reflects an issue with how diabetes admissions to Basingstoke and North Hampshire Hospital are coded.
- There has been an increase in elective admissions during the four year period from 2008/09 to 2011/12, from 624 admissions in 2008/09 to 723 admissions in 2011/12. This trend was seen across all CCGs except West Hampshire CCG, where the admission rate rose during 2009/10 and 2010/11 but dropped to 2008/09 levels in 2011/12.
- Elective admissions are strongly related to deprivation, meaning there are higher numbers of admission amongst more deprived people. The lower admission rate for people in the most deprived quintile is possibly an artefact caused by the coding discrepancy at Basingstoke and North Hampshire Hospital.

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4.2.2 Emergency admissions

- There were 2,517 emergency admissions to hospital in Hampshire where diabetes was the main reason for admission during the two year period from 2009/10 to 2011/12. This equates to a rate of 61 per 100,000 population.
- The rate of emergency admissions was highest in South Eastern Hampshire CCG (70 per 100,000 population) and lowest in North Hampshire CCG (59 per 100,000 population).
- There has been a general downward trend in emergency admissions during the four year period from 2008/09 to 2011/12, from 870 admissions in 2008/09 to 830 admissions in 2011/12. This trend was seen across all CCGs except West Hampshire CCG, where the number of admissions has risen slightly from 323 in 2008/09 to 350 in 2011/12.
- Emergency admissions for diabetes are very strongly related to deprivation, with the rate of admission amongst the most deprived fifth of people being more than double the rate of admission of the least deprived fifth of people.
Figure 5: all age elective and emergency admissions where diabetes is primary diagnosis: rate, trend, deprivation

**Elective admissions – CCG rate**

Elective admissions – trend

Elective admissions – deprivation quintile

**Emergency admissions – CCG rate**

Emergency admissions – trend

Emergency admissions – deprivation quintile

Sources: CDS received from Provider Trusts via SUS & ONS LSOA mid year population estimates.
4.3 Hospital admissions where diabetes is the possible underlying cause of admission

Diabetes can lead to long term micro and macro vascular complications including loss of sight. It increases the risk of heart attack and stroke by around a factor of three and end-stage kidney disease by around four. Because of this, there are many more hospital admissions for complications caused by diabetes, than admissions for diabetes. For example, someone with diabetes is much more likely to be admitted to hospital because of heart or kidney problems than an issue with their diabetes management.

There were 71,213 admissions to hospital in Hampshire during the two year period from 2009/10 to 2011/12 where diabetes may have been the underlying reason for admission. This is 14 times more than those admissions where diabetes was the main reason for admission. Not all these admissions will have been as a direct consequence of diabetes so will be an overestimate of the true impact diabetes has on hospital admissions. Nevertheless these data make an important point.

4.3.1 Elective admissions
- There were 33,235 elective admissions to hospital in Hampshire where diabetes was a possible underlying cause during the two year period from 2009/10 – 2011/12. This equates to a rate of 628 per 100,000 population. Figure 6 and table 4 show the number and rate of elective admissions for each CCG.
- The rate of elective admissions was highest in North East Hampshire and Farnham CCG (1,052 admissions per 100,000 population) and lowest in Fareham and Gosport CCG (457 admissions per 100,000 population). The very high rate in North East Hampshire and Farnham CCG is likely to reflect a difference in how admissions to Frimley Park Hospital are coded rather than because of significantly higher numbers of people with diabetes being admitted to hospital [need to add in something about how this relates to prevalence]. The CCG may want to investigate this discrepancy.
- There has been a steep increase in elective admissions during the four year period from 2008/09 to 2011/12, from 8,445 admissions in 2008/09 to 13,364
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admissions in 2011/12. This is a 58% increase in admissions. The trend was seen across all CCGs.

- Elective admissions are strongly related to deprivation, meaning there are higher numbers of admission amongst more deprived people.

4.3.2 Emergency admissions

- There were 36,599 elective admissions to hospital in Hampshire where diabetes was a possible underlying cause during the two year period from 2009/10 – 2011/12. This equates to a rate of 643 per 100,000 population and is higher than the number and rate of elective admissions. Figure 6 and table 4 show the number and rate of elective admissions for each CCG.

- The rate of emergency admissions was highest in South Eastern Hampshire CCG (758 per 100,000 population) and lowest in West Hampshire CCG (571 per 100,000 population). South Eastern Hampshire and North East Hampshire and Farnham CCGs both had admission rates significantly higher than the Hampshire average; admission rates in West Hampshire were significantly lower than the Hampshire average.

- There has been an increase in emergency admissions during the four year period from 2008/09 to 2011/12 where there is an underlying diagnosis of diabetes, from 10,310 admissions in 2008/09 to 12,880 admissions in 2011/12. This is a 25% increase in admissions. The trend was seen across all CCGs except South Eastern Hampshire CCG, where the number of admissions have fluctuated but overall stayed about the same over the four year period.

- Emergency admissions for diabetes are very strongly related to deprivation, with the rate of admission amongst the most deprived fifth of people being three times higher than the rate of admission of the least deprived fifth of people.
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Figure 6: all age elective and emergency admissions where diabetes is underlying diagnosis: rate, trend, deprivation

Elective admissions: CCG rate

Emergency admissions: CCG rate

Elective admissions: trend

Emergency admissions: trend

Elective admissions: deprivation quintile

Emergency admissions: deprivation quintile

Sources: CDS received from Provider Trusts via SUS & ONS LSOA mid year population estimates
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Table 4: Diabetes admissions (all ages, elective and emergency) where diabetes is underlying diagnosis (2009/10 – 2011/12)

<table>
<thead>
<tr>
<th>Region</th>
<th>All admissions all ages</th>
<th>Elective admissions all ages</th>
<th>Emergency admissions all ages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>DSR</td>
<td>Number</td>
</tr>
<tr>
<td>Hampshire</td>
<td>71213</td>
<td>1293</td>
<td>33235</td>
</tr>
<tr>
<td>Fareham and Gosport</td>
<td>9546</td>
<td>1122</td>
<td>3637</td>
</tr>
<tr>
<td>NE Hants and Farnham</td>
<td>13554</td>
<td>1800</td>
<td>7708</td>
</tr>
<tr>
<td>N Hants</td>
<td>9527</td>
<td>1228</td>
<td>4193</td>
</tr>
<tr>
<td>SE Hants</td>
<td>11858</td>
<td>1319</td>
<td>4558</td>
</tr>
<tr>
<td>West Hants</td>
<td>29599</td>
<td>1235</td>
<td>14842</td>
</tr>
</tbody>
</table>

4.4 Diabetes complications

4.4.1 Hypoglycaemia

Hypoglycaemia, or hypo, is the medical term for low blood glucose levels – that is a blood glucose level of less than 4 mmol/l. This is too low to provide enough energy for the body’s activities. Hypos can happen when people with diabetes are treated with insulin or some diabetes tablets. People with diabetes need to take action quickly once they notice their hypo warnings or it is likely to become more severe and the person may become unconscious or have a fit.

There were 731 hypoglycaemia admissions to hospital in Hampshire during the two year period from 2009/10 to 2011/12 (figure 7 and table 5). This equates to a rate of 14 admissions per 100,000 population, and all CCGs had a similar rate. The number of hypoglycaemia admissions to hospital has increased from 201 in 2008/09 to 234 in 2011/12, and the directly standardised rate has risen slightly from 12 admissions per 100,000 population to 14 admissions.

This Hampshire trend hides differences at CCG level – in Fareham and Gosport admissions have risen slightly over the four years; in North East Hampshire and Farnham they rose in 2009/10 but have since fallen to 2008/09 levels; in North and West Hampshire CCGs admissions have increased; and in South Eastern Hampshire they have remained level. None of these changes in trend have been statistically significant.

Hypoglycaemia admissions are nearly four times as common in the most deprived fifth of people in Hampshire compared to the least deprived fifth.
4.4.2 Diabetic ketoacidosis and coma

In the short term, consistent high blood glucose levels can lead to a condition called diabetic ketoacidosis (DKA). The body begins to use stores of fat as an alternative source of energy, and this in turn produces an acidic by-product known as ketones. Eventually, if untreated, the level of ketones will continue to rise and, combined with high blood glucose levels, a coma will develop which can be fatal. However, at any of these intermediate stages, ketoacidosis can be treated and damage usually limited. Any person with diabetes who relies on administering insulin (i.e., by injections or an insulin pump) could develop diabetic ketoacidosis. In rare cases people controlling their diabetes with diet or tablets have been known to develop ketoacidosis when severely ill.

There were 967 admissions to hospital for DKA and coma in Hampshire during the two year period from 2009/10 to 2011/12 (figure 8 and table 5). This equates to a rate of 26 per 100,000 population. None of the admission rates for all CCGs were significantly different to the Hampshire average. The highest rate was in South Eastern CCG (32 admissions per 100,000 population, 185 people) and the lowest in North Hampshire CCG (23 admissions per 100,000 population, 135 people).

The trend in DKA and coma admissions has decreased slightly across Hampshire during the four year period from 2008/09 to 2011/12, from 336 to 318 admissions per year (non-significant difference overall). Only West Hampshire CCG has had an increasing (but not significantly so) trend in DKA and coma admissions, from 103 in...
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2008/09 to 134 in 2011/12. This equates to an increasing rate of admissions from 21 to 27 admissions per 100,000 population.

DKA and coma admissions are three times more common in the most deprived fifth of people in Hampshire compared to the least deprived fifth.

Figure 8: Diabetic ketoacidosis and coma admissions, trend and deprivation

Table 5: Diabetes admissions for hypoglycaemia and ketoacidosis/coma, 2009/10 – 2011/12

<table>
<thead>
<tr>
<th></th>
<th>Hypoglycaemia</th>
<th>Diabetic ketoacidosis and coma</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>DSR</td>
</tr>
<tr>
<td>Hampshire</td>
<td>731</td>
<td>14</td>
</tr>
<tr>
<td>Fareham and Gosport</td>
<td>112</td>
<td>14</td>
</tr>
<tr>
<td>NE Hants and Farnham</td>
<td>112</td>
<td>16</td>
</tr>
<tr>
<td>N Hants</td>
<td>116</td>
<td>16</td>
</tr>
<tr>
<td>SE Hants</td>
<td>127</td>
<td>15</td>
</tr>
<tr>
<td>West Hants</td>
<td>276</td>
<td>12</td>
</tr>
</tbody>
</table>
4.5 Amputation

When diabetes, both Types 1 and 2, is present for many years, especially if it is poorly controlled, it can cause complications such as reducing blood flow to vessels in the feet and nerve damage which reduces sensation. This increases the risk of ulcers and infections that may lead to the need for amputation. Around 6,000 people with diabetes have leg, foot or toe amputations each year in England. This is over 100 amputations a week amongst people with diabetes. There are huge geographical variations in amputation rates – across England there is a ten-fold variation in the incidence of major amputation. Between 40% and 80% of people die within 5 years of having an amputation. Amputations and foot ulcers have a huge impact on quality of life in terms of pain, mobility, depression, relationships and ability to work. Crucially, up to 80% of amputations are preventable. There is evidence that providing an integrated foot care pathway, with trained staff in foot protection services in the community and speedy access to multidisciplinary specialist teams, considerably lowers risk of amputation.

There were 586 lower limb amputations arising from diabetes complications in Hampshire during the two year period from 2009/10 to 2011/12 (figure 9 and table 6). This includes both major and minor lower limb amputations (major amputations are those above the ankle, minor amputations are below). This equates to a rate of 11 per 100,000 population. The amputation rate in Fareham and Gosport CCG was significantly higher than the Hampshire average at 16 amputations per 100,000 (132 amputations). The rate in all other CCGs was similar to the Hampshire average.

The trend in lower limb amputations in Hampshire has decreased during the four year period from 2008/09 to 2011/12, from 202 amputations in 2008/09 to 185 in 2011/12. The trend in amputations for each CCG is more varied as a result of small numbers of amputations overall. The amputation rate in Fareham and Gosport was static over the four year period; decreasing non-significantly in North East Hampshire and Farnham, South Eastern Hampshire and West Hampshire CCGs; and increased in North Hampshire in 2009/10 but has stayed static since. Amputations are three times more common amongst the most deprived fifth of people in Hampshire compared to the least deprived fifth.

---

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Diabetes

Figure 9: lower limb amputations 2009/10 to 2011/12 – rate, trend and deprivation

Table 6: diabetes amputations 2009/10 to 2011/12

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th></th>
<th>Women</th>
<th></th>
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<td>DSR</td>
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<td>DSR</td>
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</tbody>
</table>
Diabetes

4.6 Diabetic retinopathy screening
Diabetic retinopathy is caused when diabetes affects the small blood vessels in the retina of the eye. It is the most common cause of sight loss in people of working age and may not cause symptoms until it is quite advanced which is why screening is important. All people with diabetes are at risk of getting diabetic retinopathy. People who have had diabetes for a long time, have poorly controlled diabetes, or who have high blood pressure are at greater risk of developing retinopathy. It is estimated that in England every year 4,200 people are at risk of blindness caused by diabetic retinopathy and there are 1,280 new cases of blindness caused by diabetic retinopathy. All people aged 12 and over with diabetes (type 1 and 2) are offered annual screening appointments for retinopathy. The only exceptions are people with diabetic eye disease who are already under the care of an ophthalmology specialist.

Table 7 contains QOF data on the proportion of people who have had retinal screening in the last 15 months. The data show variation within CCGs in the proportion of people being screened. In future Public Health England are planning to provide full data on uptake and coverage of retinal screening by CCG and GP practice.

Table 7: % people receiving retinal screening in last 15 months (2011/12) in Hampshire

<table>
<thead>
<tr>
<th>CCG</th>
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<th>% in lowest achieving GP practice</th>
<th>% in highest achieving GP practice</th>
<th>England average</th>
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<td>79.9</td>
<td>100</td>
<td>91.9</td>
</tr>
<tr>
<td>North Hampshire</td>
<td>93.1</td>
<td>65.6</td>
<td>99.9</td>
<td>91.9</td>
</tr>
<tr>
<td>South Eastern Hampshire</td>
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<td>75.6</td>
<td>100</td>
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</tr>
<tr>
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<td>95.1</td>
<td>79.3</td>
<td>100</td>
<td>91.9</td>
</tr>
</tbody>
</table>

Source: QOF

4.7 Deaths
There were 349 deaths from diabetes in Hampshire during the three year period from 2009 to 2011. However we know that diabetes is often under-recorded on death certificates, which is likely to mean that the true number of deaths where diabetes is the underlying cause is likely to be much higher – perhaps by as much as 50%. The death rate from diabetes in Hampshire was 4 per 100,000, lower than the national average of 6 deaths per 100,000 population (figure 10 and table 8). There was variation between CCGs, with the highest death rate seen in South Eastern Hampshire (6 deaths per 100,000 population).

http://eurpub.oxfordjournals.org/content/18/2/201.full
Diabetes

There does not appear to be a strong relationship between deprivation quintile and death from diabetes (figure 11), but this is probably a result of the very small numbers of deaths. There is a very strong relationship between all other diabetes indicators and deprivation and nationally there is a strong relationship between deprivation and diabetes deaths.

There has been a general downward trend in deaths from diabetes in Hampshire, in line with the national trend (figure 12). However this trend is not seen in all Hampshire’s CCGs, though because of small numbers the following information should be interpreted with caution.

In general, deaths from diabetes amongst men and women decreased in Fareham and Gosport and North Hampshire from 2006/08 to 2009/11. In North East Hampshire and Farnham deaths increase slightly amongst men but remained static amongst women, giving a slightly rising trend in deaths overall. In South Eastern Hampshire, deaths slightly increase amongst men but slightly decreased amongst women to give an overall static trend in deaths. Finally in West Hampshire deaths decreased amongst men but rose amongst women, giving an overall static trend in deaths.

Figure 10: deaths from diabetes in Hampshire, 2009/2011
**Diabetes**

**Figure 11:** deaths from diabetes in Hampshire by deprivation quintile

![Mortality - Diabetes Mellitus - All Ages](chart1.png)

**Figure 12:** trend in deaths from diabetes in Hampshire, 2006/08 to 2009/11

![Mortality - Diabetes Mellitus - All Ages](chart2.png)

**Table 8:** number and rate of deaths from diabetes in Hampshire by CCG, 2009/11

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th></th>
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<th>Females</th>
<th></th>
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<td>156</td>
</tr>
</tbody>
</table>

Sources: CNS Public Health Mortality Annual Extract & CNS LSOA mid year population estimates

*Comparator data are not available for all indicators
Diabetes

5. Evidence of what works

There is a wealth of evidence about what works in terms of best clinical care for people with diabetes\(^8\), and a growing body of evidence about how best to organise services through integrated care. \(^9\) Nationally and locally in Hampshire, there is evidence of gaps and challenges in the care of people with diabetes. Areas that stand out in particular include the lack of access to and uptake of structured education, the high level of variability of care in both primary and secondary care and feedback from people with diabetes that the care they receive appears fragmented. For people with type 1 diabetes mellitus, the present evidence suggests high levels of poor glycaemic control and a low rate of 9 key care processes achievement which increases the likelihood of future complications that could be avoided.

The need for integrated health care is present at every stage of the patient journey. Integrated diabetes care is both integration of a health care system and co-ordination of services around a patient. In essence, diabetes integration is the whole health community joining in partnership to own the health outcomes of patients with diabetes in their local area. Integration is not primarily about structures, organisations or pathways; it is about better outcomes for people. It is the comprehensive diabetes care you would want and expect for yourself or a member of your family. Integrated care covers all the aspects of diabetes care, delivered in a coordinated manner, across the many different health and social care professionals involved in caring for the person with diabetes.

Integrated care imposes the patient’s perspective as the organising principle of service delivery and makes redundant old supply-driven models of care provision. In diabetes, ‘vertical integration’ of care across traditional primary, intermediate and secondary care providers is essential to reduce duplication of – and gaps in - services. This can be achieved by commissioning outcomes of whole pathways of care rather than fragments of a service.

The major challenge will be the need for a wholesale adoption of the five key elements of integration: shared governance, integrated Information Management Technology, alignment of finances, care planning, clinical engagement and partnership with the aligning of agendas and incentives to focus on patient-centred care.

Providing better integrated diabetes care has been shown to improve patient experience, quality of clinical care and reduce hospital admissions for vulnerable patients. The next steps need to include removing cultural differences between different providers and setting realistic objectives for the delivery of integrated care.


Diabetes

6. Recommendations

- We must do more to prevent people from developing diabetes, starting with supporting families during pregnancy, through the early years and beyond.
- This requires a multi-agency, multi-partner strategic approach. All organisations have a role in preventing people developing diabetes. There needs to be a stronger concerted effort to link together strategically all interventions to prevent and treat diabetes. This starts with ensuring the environment in which people live is conducive to a physically active life (such as adequate and safe green spaces, careful consideration of planning applications to prevent a proliferation of fast food outlets in our most deprived areas) through supporting children and families to be healthy in the early years, to linking people who develop diabetes to ways to improve their lifestyles, to ensuring our integrated diabetes services provide the highest quality care when people with diabetes develop complications from their condition.
- Throughout this approach must be a strong focus on reducing inequalities in diabetes, by better targeting and provision of support to prevent the onset of diabetes in people who are most at risk, and support to self-manage once diabetes is present.
- All CCGs should ensure all practices are submitting to the National Diabetes Audit, and should use these data to monitor the proportion of people with diabetes receiving all 9 key care processes.
- All CCGs should be aiming to be in the top national quartile for the proportion of people with diabetes achieving HbA1c, blood pressure and cholesterol targets than the national average. Currently Hampshire is in the second bottom quartile.
- CCGs should review their diabetes services with a view to ensuring they are commissioning, or working towards commissioning a true integrated service as described by the NHS Diabetes report *Best practice for commissioning diabetes services. An integrated care framework.*