

Diabetes Mellitus: Summary

Diabetes mellitus is a long-term condition that affects an estimated 15,464 people in Greenwich. It is a chronic metabolic disease caused either by insufficient or ineffective insulin resulting in too much sugar in the blood. When not managed effectively diabetes can lead to a wealth of complications including heart disease, eyesight problems and kidney problems.

There are 2 main types of diabetes, Type 1 where the body does not produce insulin and Type 2 where the body does not make enough insulin or cannot use the insulin properly. Type 2, the most common form of diabetes, accounts for approximately 85% of diabetes diagnoses (Diabetes UK, 2012).

Diabetes is the fifth most common cause of death in the world; more than 1 in 10 deaths of adults (aged 20-79) in England can be attributed to diabetes. Life expectancy for people with Type 1 diabetes is reduced by approximately 20 years and 10 years for Type 2 diabetes (Diabetes UK, 2010).

Morbidity (ill-health associated with diabetes)

- 5.8% of GP registered patients are diagnosed with diabetes. It is expected that 7.8% of Greenwich population are currently living with diabetes; this includes those who are not diagnosed.
- Diabetes can bring additional health complications and Greenwich residents with diabetes have higher rates of complications than people with diabetes in the rest of England. These include myocardial infarction, stroke, angina, heart failure, renal replacement therapy and minor amputations.

Mortality (deaths associated with diabetes)

- Mortality where diabetes is an indirect cause has been increasing by 2.5 deaths per year. In 2011, there were 45.8 deaths per 100,000 Greenwich residents per year. Mortality (where diabetes is a direct cause) remains steady around 7 deaths per 100,000 Greenwich residents per year.
- Inpatient mortality is higher for those who have diabetes in Greenwich by 4.2% compared to those without although this is much lower when compared to England figures.

Spend, care processes and treatment outcomes

- Total spend on diabetes care is lower in Greenwich than England, London and ONS comparators. In 2012/13, the majority of Greenwich expenditure for diabetes (75%) was on prescribing and community care.
- Of the 8 care processes set out by NICE, Greenwich is performing worse than England on 4: cholesterol, serum creatinine, urine albumin and smoking as well as all the care processes combined. The percentage of Greenwich patients receiving all care processes have been falling in recent years.
- Fewer Greenwich patients are reaching their treatment outcomes for blood pressure, cholesterol and HbA1c (an indicator of blood glucose levels for the previous 2 - 3 months) than England. These figures vary considerably by GP practice population.

Service use

- Hospital errors (eg. diabetic medication errors) have reduced in the last recorded year and are below the England average in each category, with the exception of management errors.
- Less than a quarter of Greenwich diabetes inpatients feel that staff are good at working with them as a team to manage their diabetes care. This is considerably lower than England rates.

Prevention

- Obesity is a key risk factor for diabetes, and Greenwich has higher rates of obesity in both adults and children compared to London, England and IMD (index of multiple deprivation) comparators.
- The evidence for a diabetes prevention programme (intensive lifestyle interventions) is strong, yet numbers of referrals to the local programme, Walking Away From Diabetes varies considerably by GP practice.

Diabetes Mellitus

What do we know about it?

Introduction

Diabetes mellitus is a long-term condition that affects an estimated 15,464 people in Greenwich. It is a chronic metabolic disease caused either by insufficient or ineffective insulin resulting in too much sugar in the blood. When not managed effectively diabetes can lead to a wealth of complications including heart disease, eyesight problems and kidney problems.

There are 2 main types of diabetes, Type 1 where the body does not produce insulin and Type 2 where the body does not make enough insulin or cannot use the insulin properly. Type 2, the most common form of diabetes, accounts for approximately 85% of diabetes diagnoses (Diabetes UK, 2012).

Diabetes is the fifth most common cause of death in the world; more than 1 in 10 deaths of adults (aged 20-79) in England can be attributed to diabetes. Life expectancy for people with Type 1 diabetes is reduced by approximately 20 years and 10 years for Type 2 diabetes (Diabetes UK, 2010).

This chapter will investigate the epidemiology of diabetes mellitus in the Borough of Greenwich. It will review the risk factors and impact of Diabetes on the Greenwich population and the effectiveness of health services available to those who are affected.

National Strategies

[The National service framework \(NSF\) for diabetes](#) set out the first ever set of national standards for the treatment and care of people with diabetes (Diabetes UK, 2008). There are 12 standards in total that address reducing risk of complications by improving identification of diabetes, self-management, training of staff and high quality care in hospitals and in the community.

In March 2011, the National Institute of Health and Clinical Excellence (NICE) produced a set of 14 quality standards for adults with Diabetes based on best clinical practice. These standards support the National Service Framework for Diabetes and locally agreed pathways of care. Further information on these standards can be found on <http://www.nice.org.uk/guidance/QS6> (NICE, 2011).

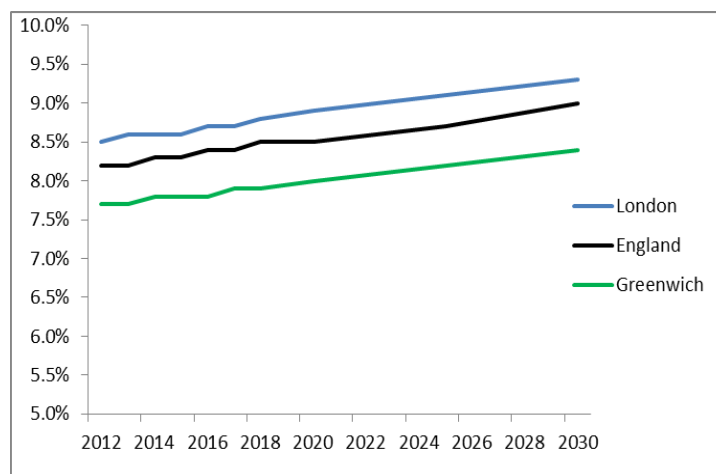
Facts and figures

A Global Burden of Disease study looked at distributions and causes of diseases, injuries and health risk factors. It highlighted diabetes as an area for concern, ranking it 16th in the UK for causes of death and 18th for cause of years living with a disability (Murray et al, 2012).

Prevalence

It is estimated that 2.9 million people in the UK have been diagnosed with diabetes and a further 8.5 million people are living with the disease undiagnosed (Diabetes UK, 2012). Public Health England estimates that 7.8% of Greenwich's current population are living with Diabetes, including those who are not yet diagnosed or registered with a GP, this is a little lower than the estimated prevalence rates for England at 8.3% and London at 8.6%. It is expected that Greenwich's prevalence rate will rise by 0.2% every 5 years (see figure 1).

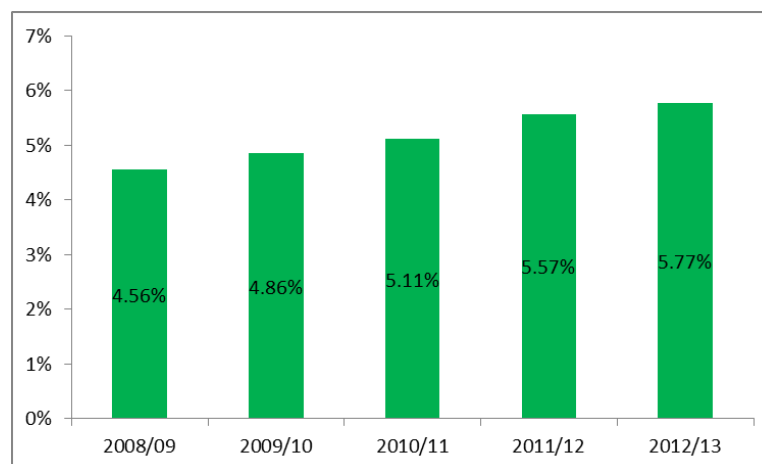
Figure 1: Greenwich estimated diabetes prevalence rates, 2009-2030



Source: PHE, 2014

The numbers of GP registered patients who have actual diagnosed Diabetes (n=12,030; 5.8% of aged 17+ years) in Greenwich shows a similar picture of a steady increase in prevalence (see figure 2), and has similar prevalence rates to London and higher prevalence rates to most of the Borough's IMD comparators (see figure 3).

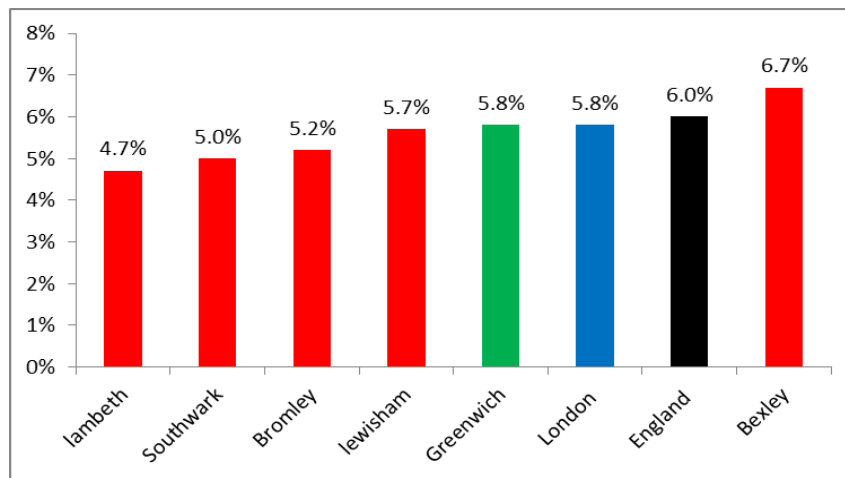
Figure 2: Prevalence of registered diabetes against GP registered population in Greenwich, 2008/09 to 2012/13



Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

Source: HSCIC, 2014

Figure 3: Prevalence of registered diabetes against GP registered population in Greenwich, London, England and IMD comparators, 2012/13.



Source: HSCIC, 2014

The difference between the reported (n=12,030, 2012/13) and estimated prevalence numbers (n=13,854, 2013) is 1,824 meaning that there is an estimated 3,276 people in Greenwich with diabetes that are potentially undiagnosed and thus possibly untreated.

Diabetes risk

A recent Health Survey for England survey found that an estimated 1 in 3 (35.3%) adults in England have 'pre-diabetes' (pre-diabetes is now referred to as "at high risk of diabetes"), a term that is used to describe people who do not have diabetes but have abnormally high blood sugar (Mainous et al, 2014). 5-10% of these people with 'pre-diabetes' will later develop Type 2 diabetes (Mainous et al, 2014). Using ONS population statistics this would translate to roughly 68,194 adults living with 'pre-diabetes' in Greenwich today and between 3,410 to 6,819 people who are currently expected to develop Type 2 diabetes.

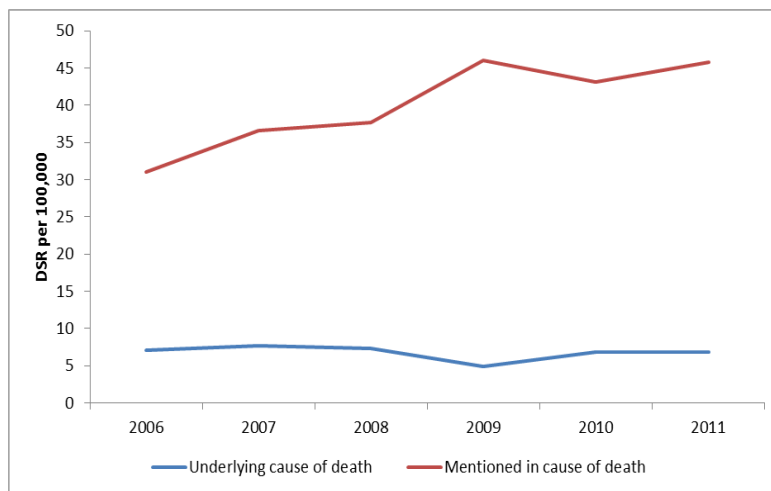
Mortality

Diabetes UK described diabetes as a silent 'assassin' that has a higher mortality rate than breast and prostate cancer combined (Diabetes UK, 2008a). Estimates suggest that 15-16% of deaths that occur in England are due to diabetes each year (NHS information centre, 2011). Mortality rates where diabetes has been registered as the underlying cause of death have been quite steady in Greenwich. Figure 4 shows a time trend of the rates of diabetes related deaths per 100,000 people from 2006 to 2011. For deaths directly attributable to diabetes it shows a directly standardised mortality rate of between 7 and 8 deaths per 100,000 each year, except in 2009 where it fell to 5 per 100,000.

However what is noteworthy is the death rates where diabetes is mentioned in the registered cause of death, but not as the underlying cause of death. These figures have been rising steadily over the years by an average of 2.5 per 100,000 people a year. The last recorded figure shows a directly standardised mortality rate of 45.8 deaths per 100,000 population.

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

Figure 4: Time trend of diabetes mortality, Greenwich, 2006-2011

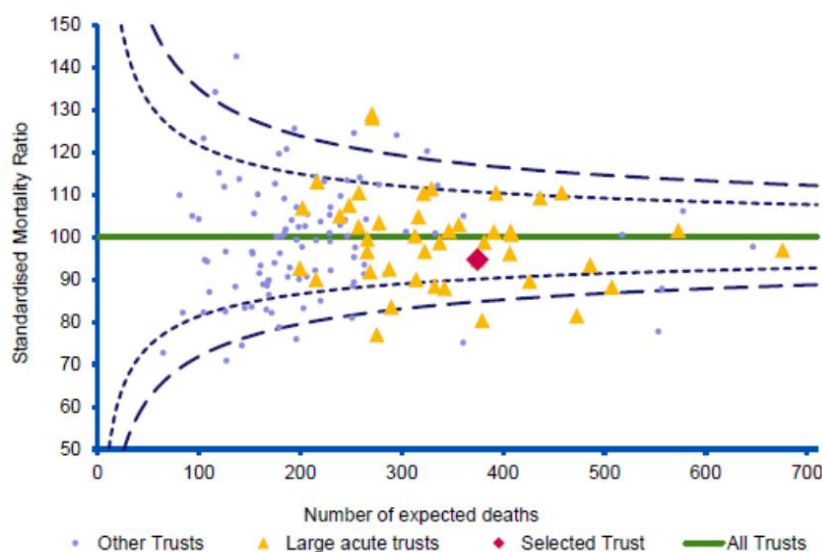


Source: ONS mid-year population figures and Public Health Mortality files

Mortality of inpatients

An evaluation of mortality rates of patients in South London Healthcare NHS Trust (formerly included Queen Elizabeth Hospital (QEH), with QEH now part of Lewisham and Greenwich Trust) shows that inpatients who have diabetes are 4.2% more likely to die than inpatients without diabetes; this equates to 15 fewer deaths among patients who do not have diabetes (over a 2 year period). This is 5.3% fewer deaths than expected when compared to all trusts included in this analysis (see figure 5). If South London Healthcare NHS Trust had the same inpatient mortality for patients with recorded diabetes as all trust included in this analysis then there would have been 19 more deaths between April 2010 and March 2012.

Figure 5: Mortality of inpatients with diabetes in South London Healthcare NHS Trust compared with diabetes across England, April 2010-March 2012

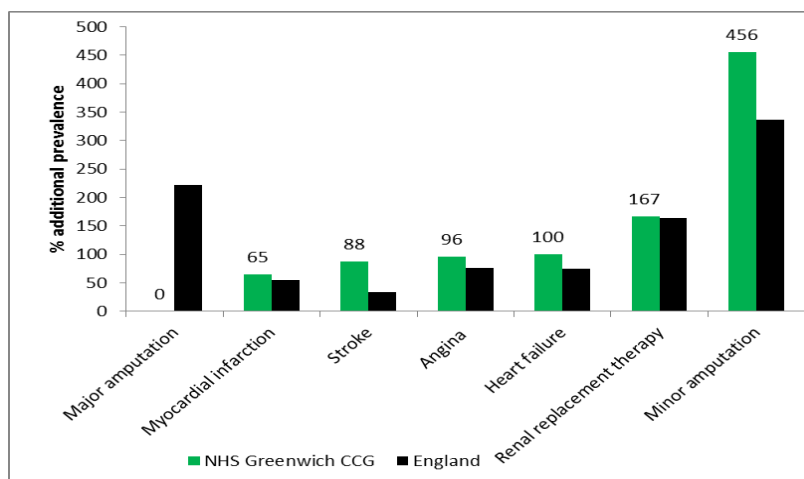


Source: YHPHO, 2014

Complications

People in Greenwich with diabetes are at additional risk of complications compared to the England population with diabetes. There are higher rates of prevalence of most complications (see figure 6).

Figure 6: Additional risk of complications for patients with diabetes in Greenwich and England, 2011/12

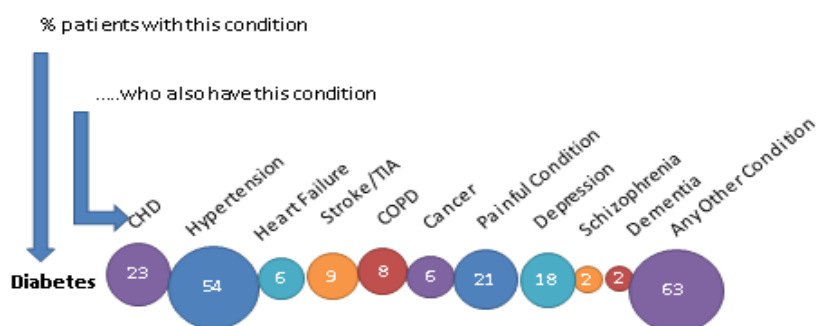


Source: National Diabetes Audit, 2013

Co-Morbidities

There is no Greenwich data on numbers of people living with co-morbidities, however the Scottish School of Primary Care (2012) undertook a study that identified the multiple conditions that people live with. Although this study is based on a Scottish population which is different to that of Greenwich, it can be a useful guide as to the co-morbidities people with diabetes may suffer. The study found that 63% of people with diabetes are living with another health condition (See Figure 7). Patients with co-morbidities have a worse quality of life and poorer clinical outcomes, are more costly and have longer length of stays in hospital with more complications post-operatively than those with no comorbidities (Fortin et al, 2007).

Figure 7: The co-morbidities of people living with diabetes



Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

Source: Adapted (with permission) from Scottish Primary Care Research Study, 2012

More than half (54%) of diabetes patients in the study had hypertension, 23% had coronary heart disease and around 21% suffered with a painful condition. Diagnosed depression affected 18% of people with diabetes in this study (see figure 7).

Risk Factors

There are a number of factors that are known to increase a person's risk of diabetes, particularly Type 2 diabetes. These risk factors can be classified under 2 categories, those which are modifiable and therefore subject to prevention and non-modifiable risk factors, which are not. These are listed below.

Modifiable risk factors

Modifiable risk factors include:

- Overweight and Obesity are the strongest modifiable risk factors for diabetes. The risk of developing type2 diabetes is associated with incremental increases in body weight in early adulthood (Kodama et al, 2014). In addition, the duration of obesity has also been found to increase risk of developing type 2 diabetes, with greater risk among people who have been obese for longer periods of time (Abdullah, 2011).
- Waist circumference: having a large waist circumference increases the likelihood of developing type 2 diabetes; e.g. for males <94cm is considered low risk; 94-102 high risk; and >102 very high risk (the equivalent figures for females are <80; 80-88; >88) (NICE, 2011).
- Low physical activity and sedentary behaviour: relative risk of developing Type 2 diabetes is reduced by 31% with regular moderate physical activity (Jeon et al, 2007) and physical activity in conjunction with diet modifications reduces the risk of diabetes by 37% in patients with pre-diabetes (Orozco et al, 2008).
- Active smokers are at 30-40% higher risk of developing diabetes than non-smokers, former smokers have a lower risk than current smokers, and risk increases the more a person smokes (U.S. Department of Health and Human Services, 2014).
- Breastfeeding: Babies who are breastfed have 39% risk reduction of developing diabetes in adulthood compared to those who are formula fed (Owen et al, 2006).

Non-modifiable risk factors:

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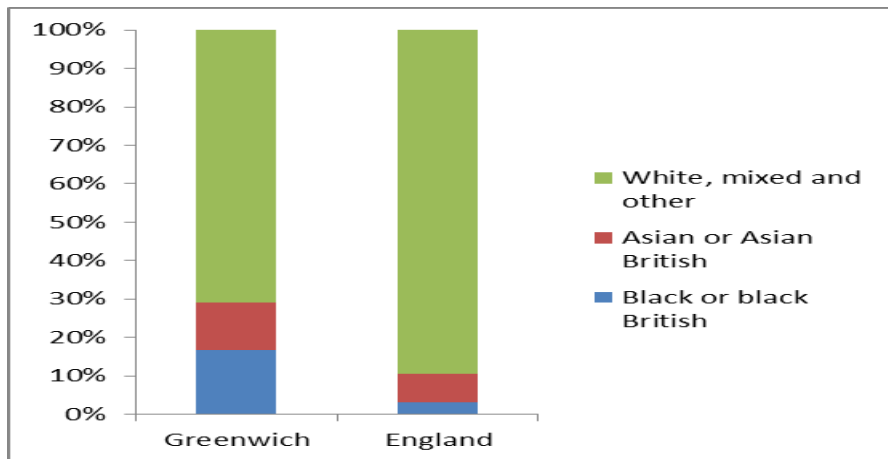
- Age: prevalence increases steadily with age, especially after 45 years (Diabetes UK, 2012).
- Ethnicity: Type 2 diabetes is 6 times more common among people of South Asian decent and 3 times more common among people of African or African-Caribbean decent, risk is also higher in Chinese populations (NICE, 2012; Diabetes UK, 2012).
- Family history of diabetes: the risk of Type 1 diabetes for first degree relatives of a type 1 sufferer is 15 times that of the general population (NICE, 2012; Diabetes UK, 2012).

| Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

- Socioeconomic factors: the most deprived populations in the UK are two and a half times more likely than average to have diabetes (Agardh et al. 2007; Diabetes UK, 2012).

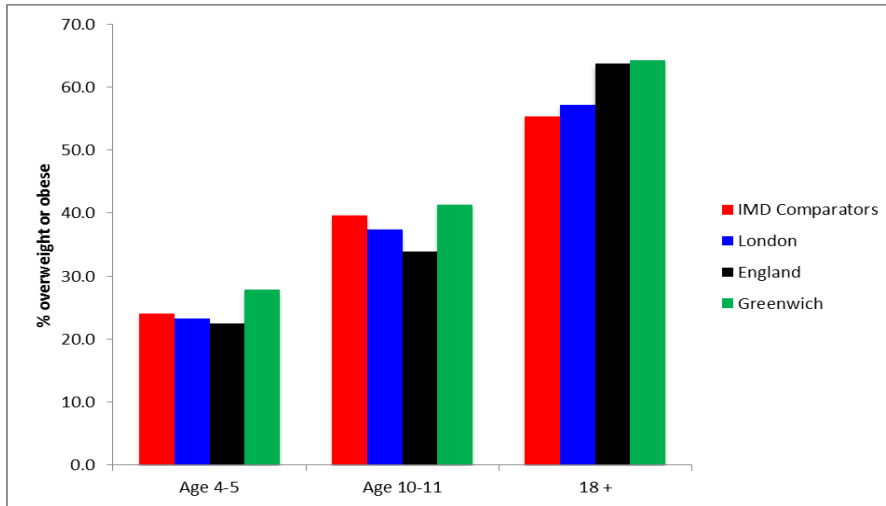
Levels for some of these risk factors are high in Greenwich; for example, the population make up of Greenwich is quite diverse and has a larger black and black British and Asian and Asian British population than the rest of England (see figure 8). Overweight and obesity levels are higher in Greenwich than in London, IMD comparators and England for all age groups recorded (figure 9) and the percentage of people who report that they undertake the recommended physical activity levels each week are lower than in London, IMD comparators and England (figure, 10). Positively, smoking rates are reducing in Greenwich to levels lower than England and IMD comparators, although this remains higher than the London rates (see figure 11) and breastfeeding initiation rates in Greenwich are high in comparison to London and England at 88%, although slightly lower than our IMD comparators (see figure 12).

Figure 8: Population make up of Greenwich and England, 2011.



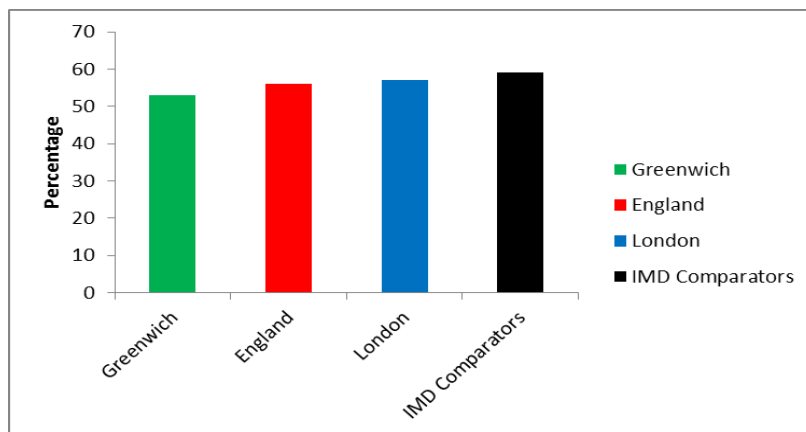
Source: ONS Census 2011 Table DC2101EW Ethnic group

Figure 9: Prevalence of overweight/obese at different age groups, 2012



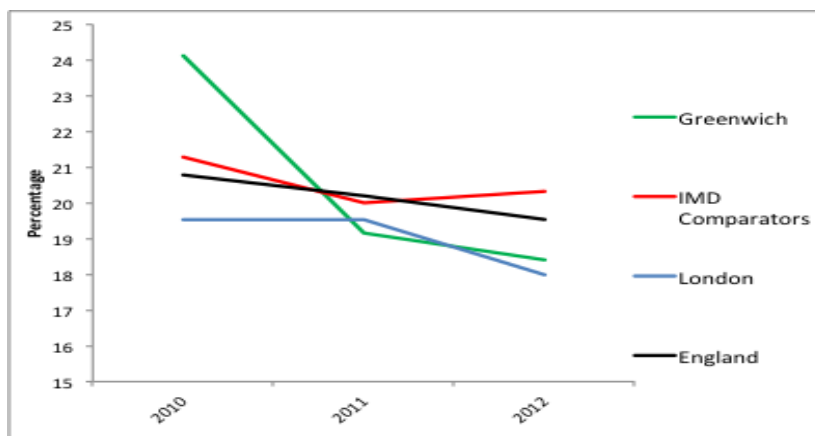
Source: PHE, 2014

Figure 10: Percentage of adult (16+) population who undertake recommended physical activity levels in Greenwich, London, IMD comparators and England, 2012



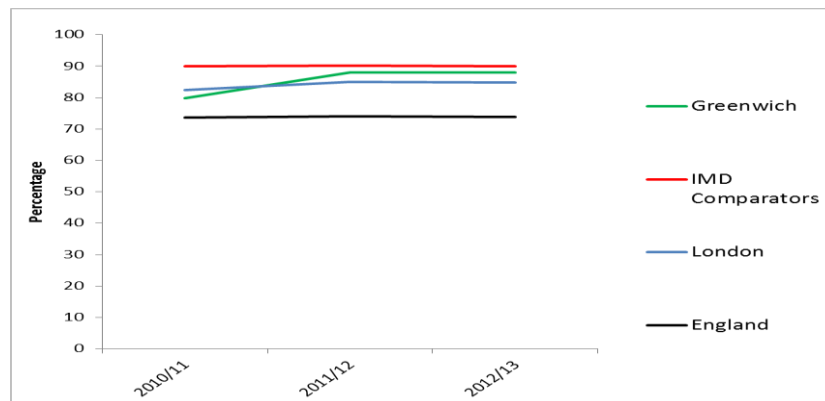
Source: PHE, 2014

Figure 11: Percentage of population who smoke in Greenwich, London, IMD comparators and England, 2010- 2012



Source: PHE, 2014

Figure 12: Percentage of mothers who give their babies breast milk in the first 48 hours after delivery in Greenwich, London, IMD comparators and England, 2010- 2012



Source: PHE, 2014

What works?

NICE has produced an extensive range of evidence based guidelines and pathways for the prevention, identification, treatment and care of diabetes and its complications for different population groups. These are listed in Appendix A with the associated web link.

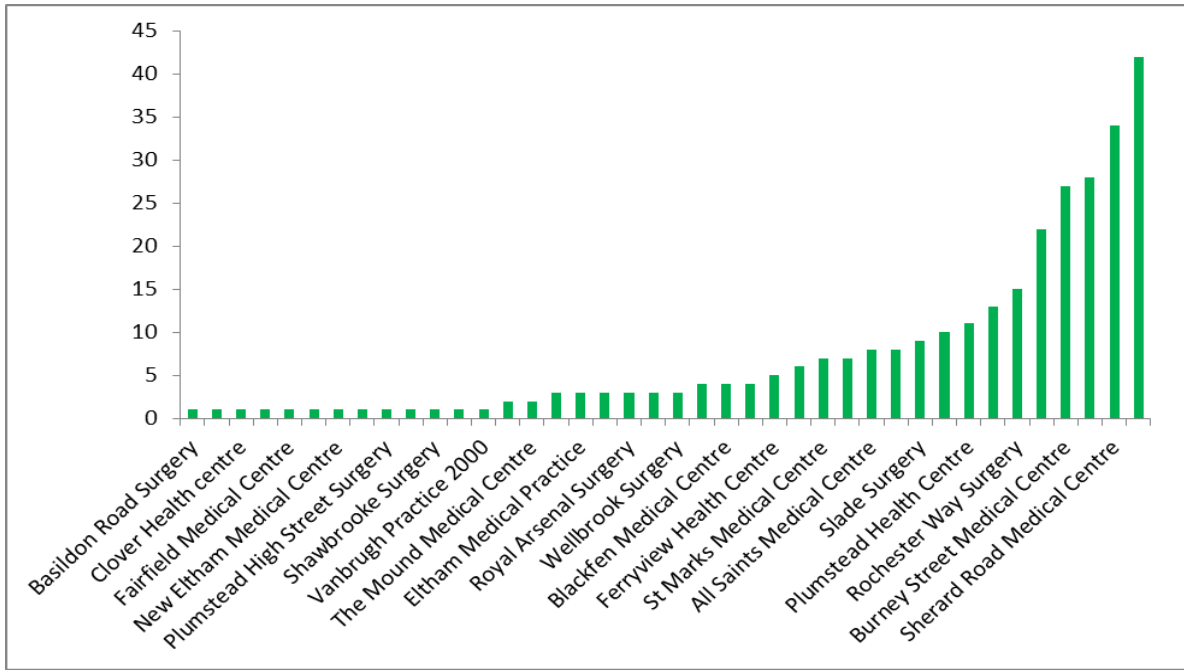
What do we know about local services?

Prevention Services

A systematic review of randomized control trials found that lifestyle interventions based on various behavioral strategies can reduce incidence rates of Type 2 diabetes (Baker et al, 2011). Lifestyle interventions include weight management and physical activity. For example, research has shown that aerobic and resistance exercise can reduce HbA1c (an indicator of blood glucose levels for the previous 2 - 3 months) within 3 months and exercise ‘clears away’ metabolites that reduce insulin sensitivity (Bird, 2012). Physical activity can also cancel the increased risk of cardiovascular disease in people with diabetes (Bird, 2012).

The Royal Borough of Greenwich provides a “Walking Away from Diabetes” programme for people who are of high risk of getting diabetes. In 2013-2014, 43 GP practices in Greenwich referred patients to this programme, with substantial differences in numbers of referrals between the practices (see figure 13). 352 people were offered a place, 86% of whom attended the course.

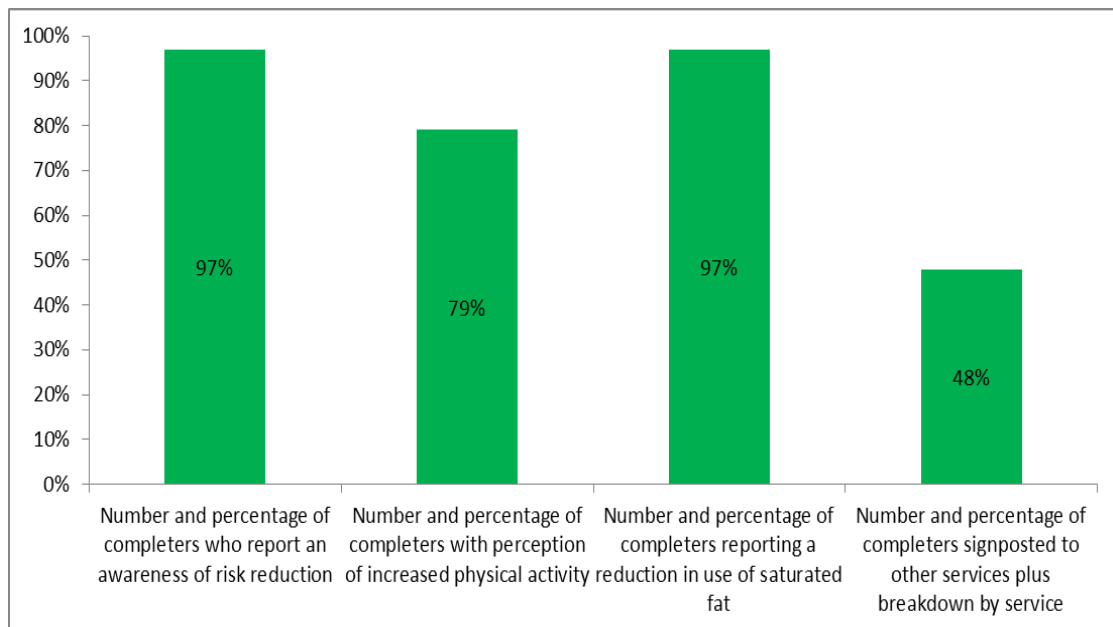
Figure 13: Referrals to Walking Away from Diabetes by Greenwich GP Practice, 2013/14.



Source: Walking Away from Diabetes database, 2014

Outcomes from walking away from diabetes are promising (see figure 14), for example, nearly all attendees reported an awareness of risk reduction and reduction in the use of saturated fat; also 79% of attendees report an increase of physical activity following the course.

Figure 14: Walking away from diabetes outcomes, April 2013-March 2014

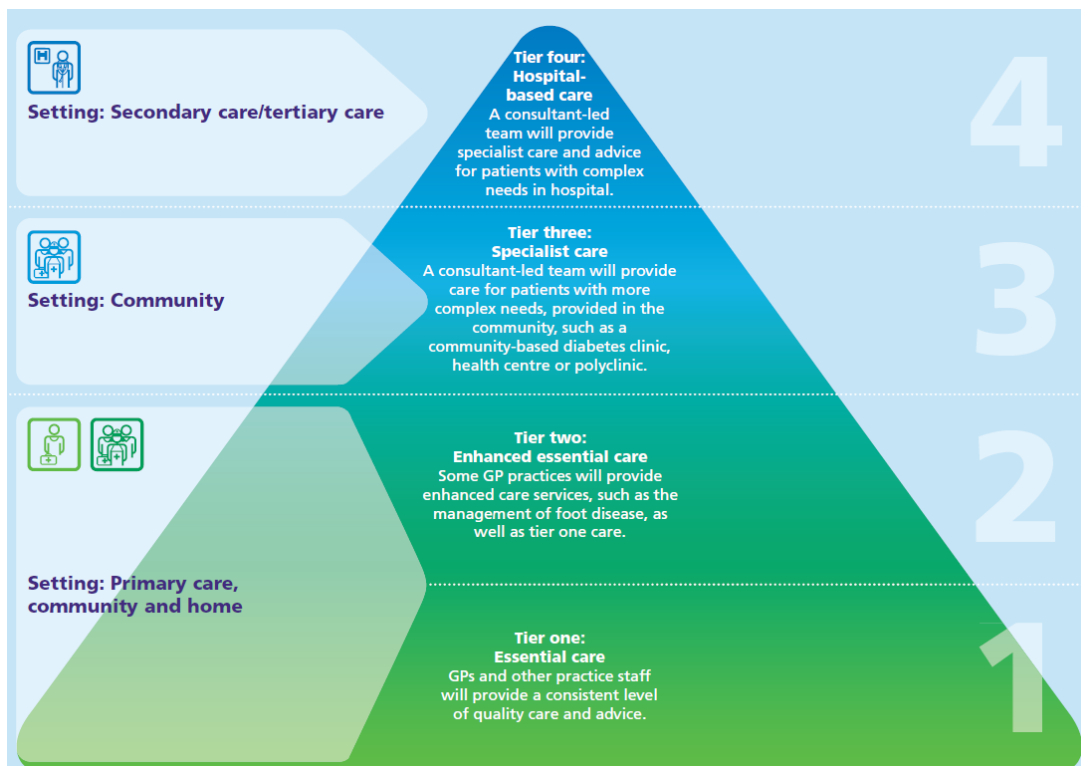


Source: Walking away from Diabetes data, 2014

The Greenwich Diabetes model of care

Diabetes services are provided in line with the Healthcare for London Model of diabetes as outlined in Figure 15 and described in tiers as indicated below. This model has worked to improve access to high-quality diabetes care, reduce inequalities and improve prevention and early detection of diabetes. In 2012, work across Bexley, Bromley and Greenwich began to redefine this model and more recently the emerging SEL Strategy has set the vision for provision for long term conditions in the future. Greenwich CCG has begun to set out its plans for long term conditions including exploring the potential opportunities to deliver care more effectively the future such as Limited Liability Partnerships (an arrangement giving NHS bodies, including General Practices, the protection of limited liability, while preserving the flexibility of a partnership structure).

Figure 15: Healthcare for London Diabetes Model 2008



Tier 1 – Basic GP Management

The basic diabetes care: all GPs are expected to be able to manage stable type 2 diabetic patients, ensure that all annual checks are carried out and patients are referred to the diabetic retinal screening service. Type 1 and gestational patients must be referred in a timely manner to the diabetes centre. Outcomes are measured via the QOF process.

Tier 2 – Enhanced Service for Insulin Initiation and Injectible Therapy

Ten practices are signed up to deliver, or are preparing to deliver, the enhanced service. This service enables practices to initiate insulin and other injectable therapies both for patients registered with them, or for other practices. At present, the practices are only delivering care for patients registered at their practices; however, the intention is to extend this through cluster based working and discussions have commenced with one practice to pilot this process.

Tier 3 – Intermediate Care Service, GCHS – Oxleas NHS Foundation Trust

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

This service has been commissioned to provide an alternative to hospital for GP referrals as well as ensuring that patients can be fast tracked back to the community from hospital care. The community diabetes team has been commissioned as a multi-disciplinary team consisting of Diabetic Specialist Nurses, Specialist Podiatry, Dietetics and Psychological Support. This team ensures that all facets of type 2 diabetic care can be delivered in the community through clinics held in GP practices, health centres and home as required. The team also works in partnership with the hospital via weekly multidisciplinary meetings that ensure that patients are assessed and transferred to the community as soon as possible.

Tier 4 – Diabetes Centre – Hospital care

This tier of care is delivered from the diabetes centre in Queen Elizabeth Hospital and delivers care for Type 1 patients, complex type 2 patients and gestational / ante-natal care. In conjunction with the tier 3 service the team takes part in weekly multidisciplinary meetings to ensure that patients are seen in the most appropriate setting. From September 2012 all patients referred to the hospital service will be seen by a consultant in a community clinic. In effect this is the start of a merger of tier 3 and tier 4 services with the community service supporting the hospital service.

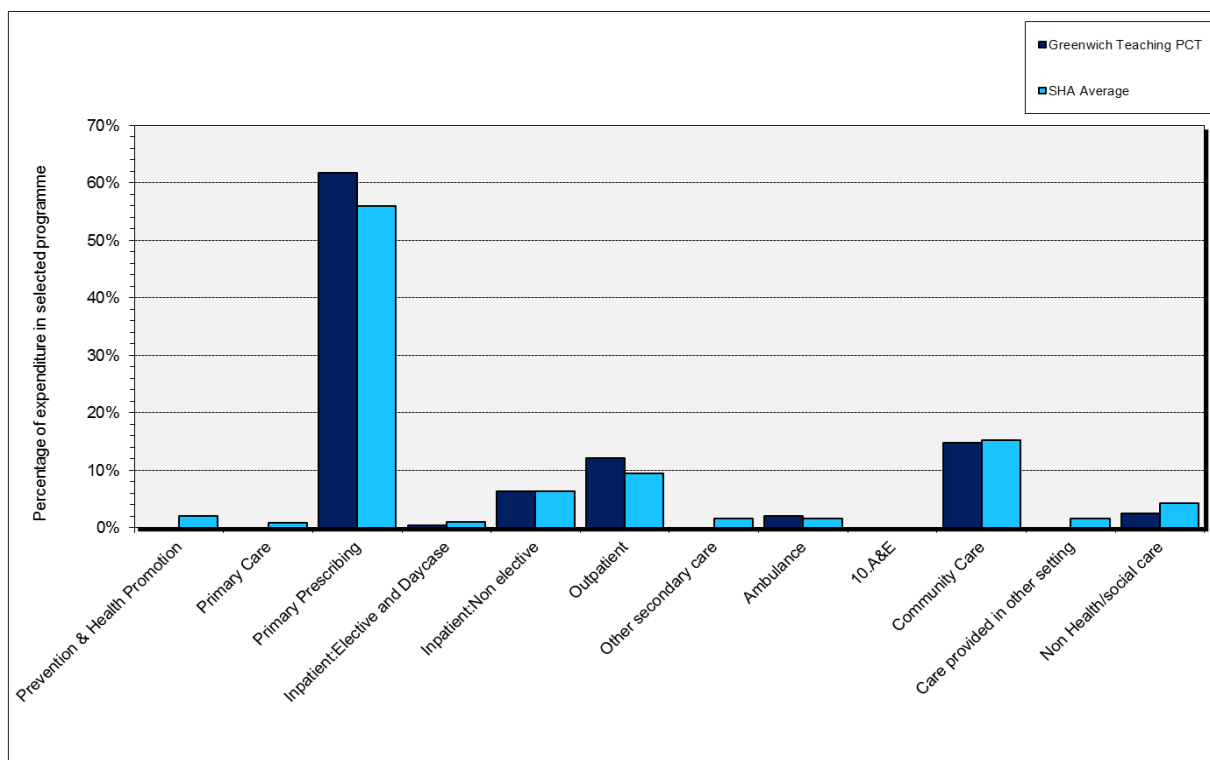
There is work underway, in collaboration with Bexley and Bromley, to review the models of care in order with a view to redesign the model. The purpose is to ensure it has the capacity and capability to address the issues that will deliver improvements health outcomes for people with diabetes.

Health care Costs (programme budget)

In 2012/13 financial year a total of £6,743,000 was spent in Greenwich on diabetes, lower than England, London and ONS comparators.

The majority of diabetes spending in Greenwich in 2012/13 was on primary prescribing at 61.8%, followed by community care at 14.8%. Greenwich spend was higher than England average for primary prescribing, outpatients, ambulance services (see figure 16).

Figure 16: Programme Category Budget Expenditure percentage splits across care setting compared to SHA average, 2012/13



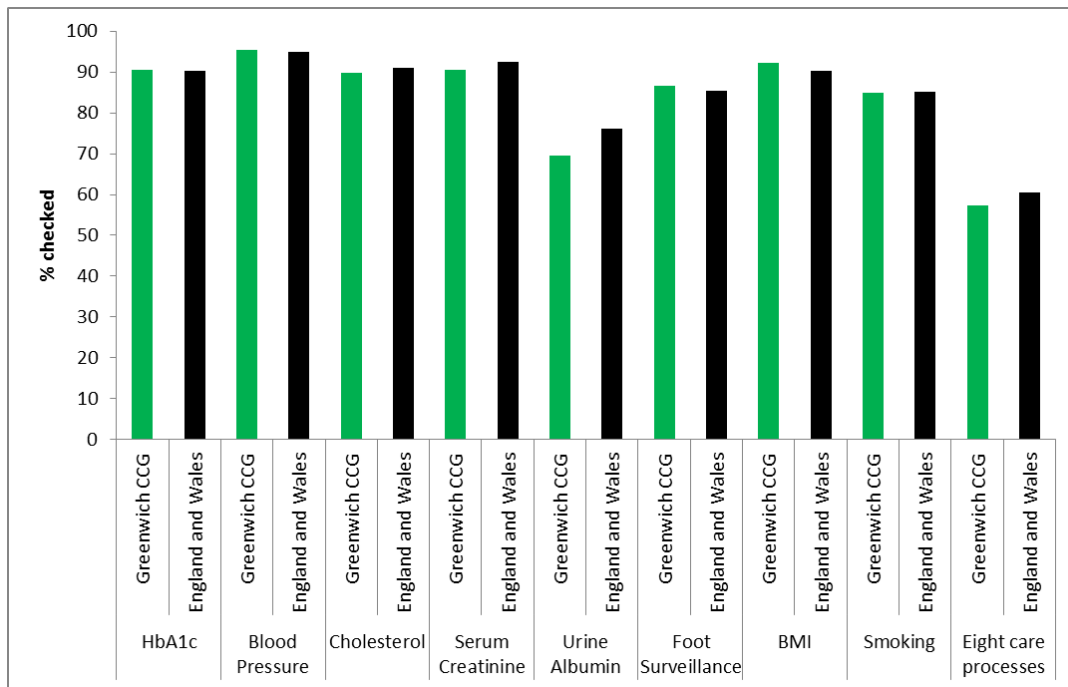
Source: Programme Budget data (2012/13)

Outcomes and performance

Primary care

Care processes are nationally recommended processes that should be provided to patients with diabetes every year and should be included as part of their personalised care planning. There are 9 care processes produced by NICE against which Greenwich can measure its performance against annually (HSCIC, 2013). The purpose of this is to check for the effectiveness of the diabetes treatment, cardiovascular risk factors and emergence of early complications, they should also facilitate joint care planning between patients and their healthcare professionals. Figure 17 shows the latest figures from Greenwich against England and Wales average (please note that one of the care processes, eye screening, is not recorded for this year). Greenwich falls below England and Wales for cholesterol, serum creatinine, urine albumin, smoking and all of the 8 recorded care processes combined.

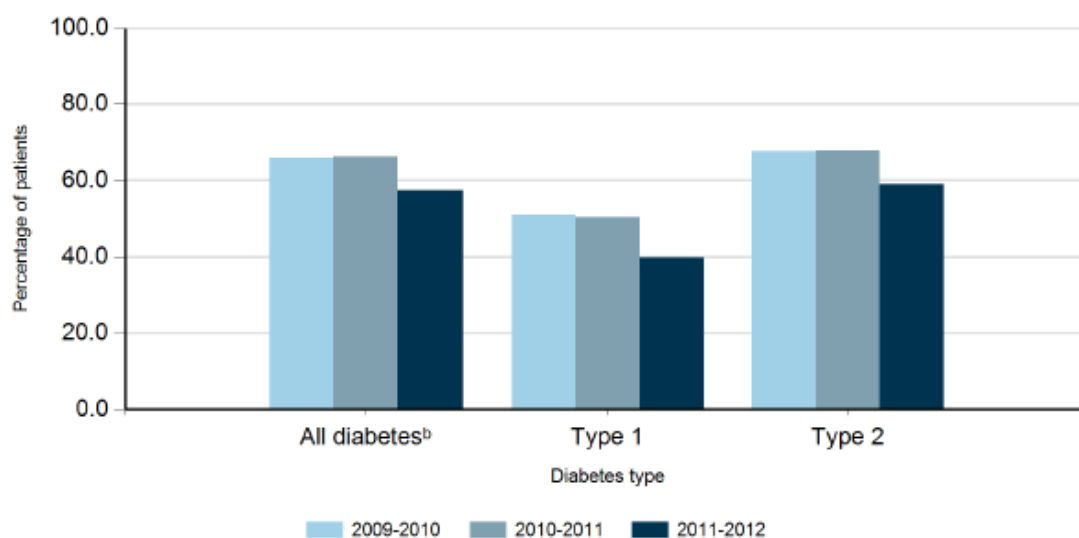
Figure 17: Care processes for all diabetes, Greenwich and England and Wales, 2011/12.



Source: National Diabetes Audit, 2012

The percentage of all patients receiving all eight recorded care processes has been dropping in the years between 2009/10 to 2011/12, particularly for Type 1 diabetes. This means that fewer patients each year are receiving checks for all care processes (see figure 18). The figures for 2009/10 should be interpreted with caution as there were fewer than 10 practices who submitted data that year and therefore data was not representative of the total Greenwich population.

Figure 18: Percentage of all patients in NHS Greenwich CCG receiving the eight NICE recommended care processes^a by audit year and diabetes type.



^a The eight NICE recommended care processes are those that are listed in Table 3 (i.e. eye screening is not included in this analysis).

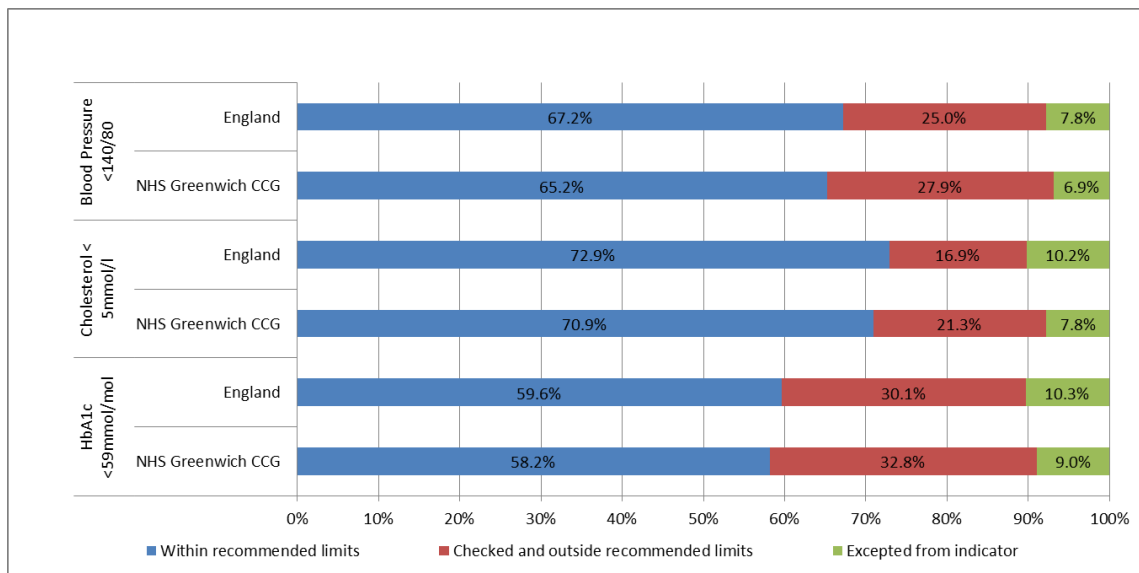
^b All diabetes includes maturity onset diabetes of the young (MODY), other specified diabetes and not specified diabetes.

Source: National Diabetes Audit 2011-12, HSCIC (2013).

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

Clinical Outcomes: NICE outlined treatment targets for HbA1c, Blood Pressure and Cholesterol, which also form part of the Quality Outcomes Framework Targets. Figure 19 shows Greenwich’s performance between Jan 2012 and March 2013. Further detail including trends can be found in Appendix B. GP Practice variation in relation to each of the target areas (data up to 2012/13) can be found in Appendix C.

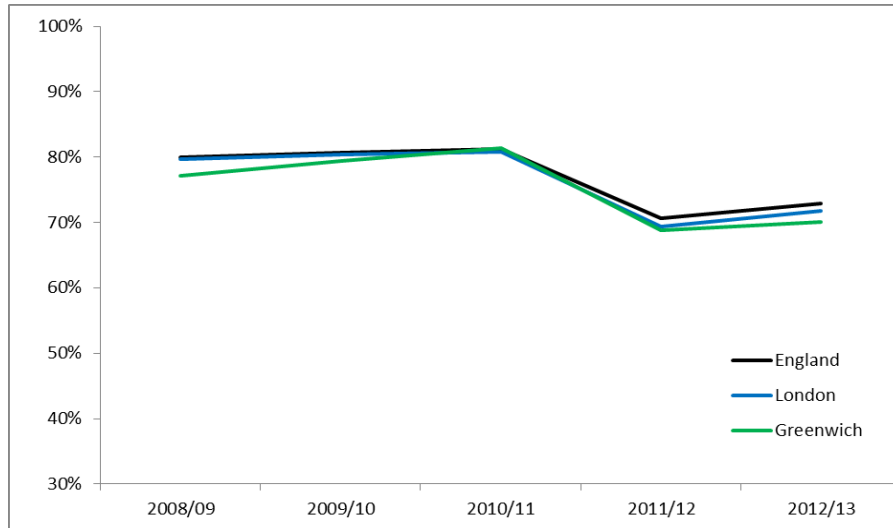
Figure 19: Clinical management of patients with diabetes, HbA1c, blood pressure and cholesterol, Jan 2012-March 2013



Source: National Diabetes Audit, 2012

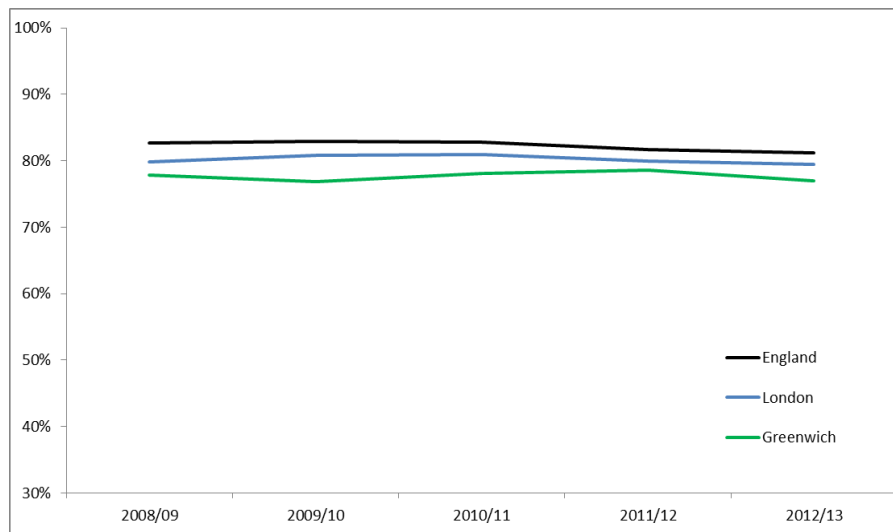
Time trends for blood pressure, cholesterol and HbA1c are displayed in figures 20, 21 and 22. The most consistently poor performing QOF target is cholesterol. The percentage of patients with diabetes whose last measured total cholesterol within the preceding 15 months is 5mmol/l or less has been lower than England and London than the last 4 years, see graph 21.

Figure 20: The percentage of patients with diabetes in whom the last blood pressure is 145/85 or less in 2008/09 - 2010/11 (DM12) and 140/80 in 2011/12 - 2012/13 (DM31) in England, London and Greenwich.



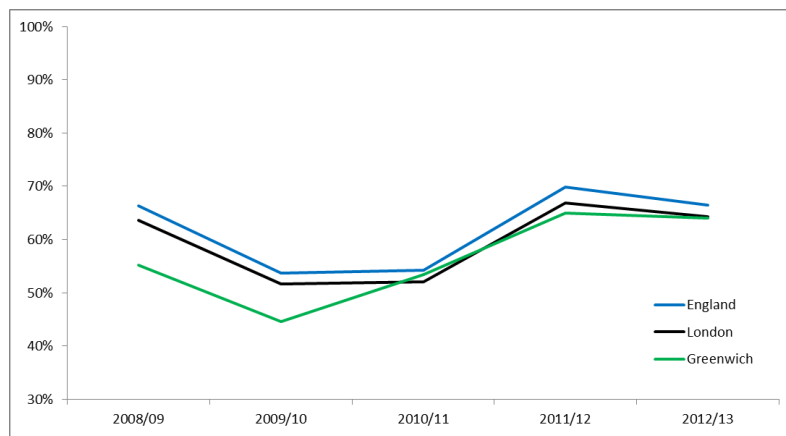
Source: HSCIC, 2014

Figure 21: The percentage of patients with diabetes whose last measured total cholesterol within the preceding 15 months is 5mmol/l or less (DM17) in England, London and Greenwich, 2008-2013.



Source: HSCIC, 2014

Figure 22: DM26 The percentage of patients with diabetes in whom the last IFCC-HbA1c is 59 mmol/mol or less in the preceding 15 months (DM26) in England, London and Greenwich, 2008-2013 (net of exceptions) .



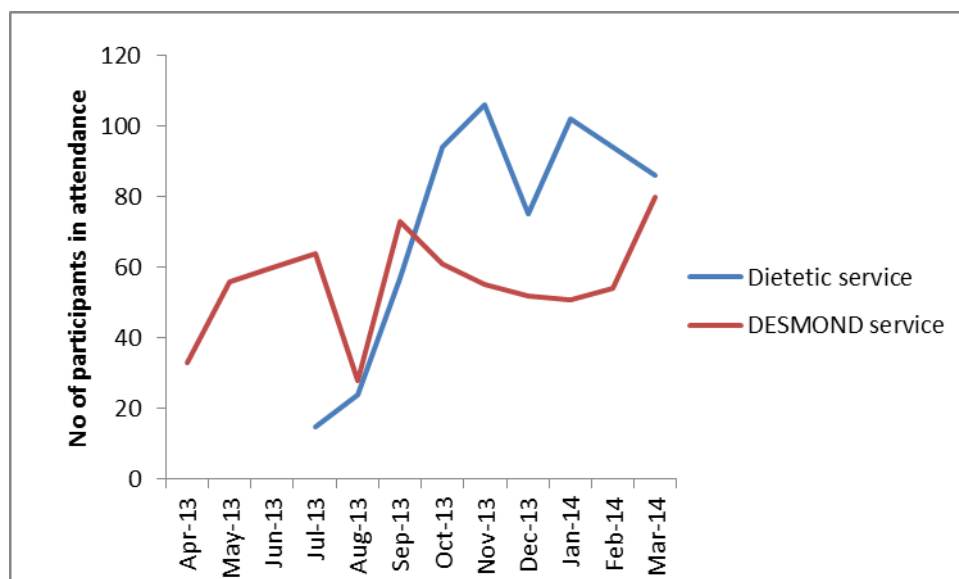
Source: HSCIC, 2014

Community services

The Community Diabetic Service is an integrated service set up to enable diabetes care, formerly provided in acute settings, to be provided in the community. This service will not only take referrals directly from GPs and healthcare professionals but will also manage the transfer of hospital patients into the service, forming part of the Greenwich Diabetes Model of Care, Tier 3.

This Community Diabetic Service sees approximately 500+ patients a month. On average, 73 of those patients attend the dietetic clinic a month and 55 attend the Diabetes Education & Self Management for Ongoing and Newly Diagnosed (DESMOND) service per month (see figure 23).

Figure 23: Dietetic and DESMOND service attendances, Greenwich CCG, 2013-14



Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

Source: Greenwich CCG, 2014

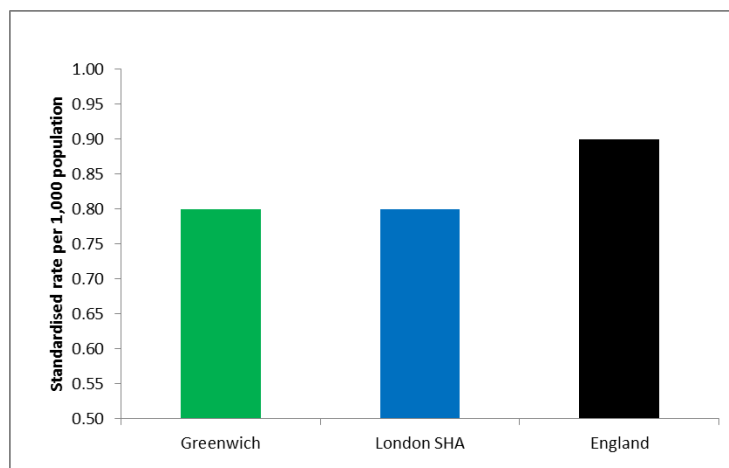
The service also offers community consultant clinics, GP support for complex patients and joint appointments with other health care professionals for patients in order to reduce the number of appointments required.

Secondary care

Admissions

Local secondary care admission rates match those of London and are slightly lower than England. The total count of diabetes admissions (including emergency and elective admissions) was 212 in 2012/13, slightly lower than the expected count of 219. This equates to 0.8 admissions for diabetes per 1000 population (see figure 24).

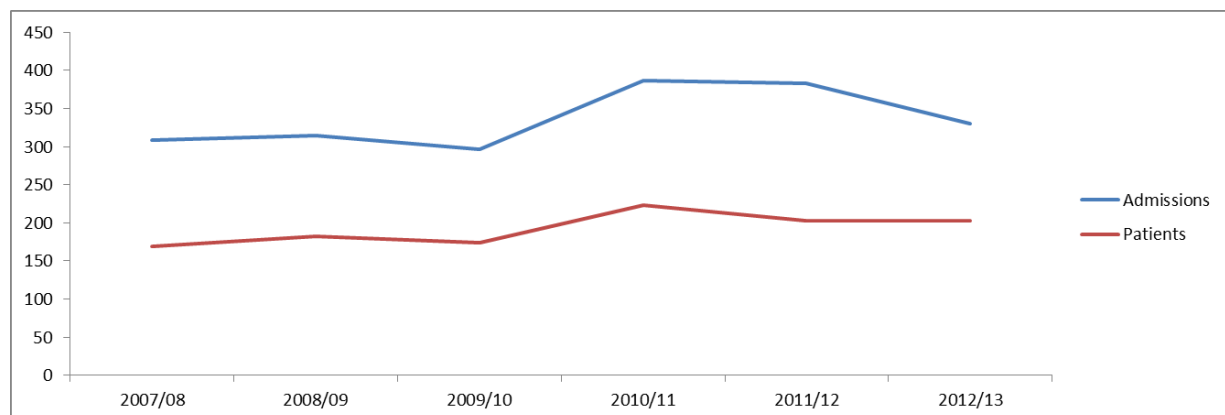
Figure 24: Total diabetes admission rates, 2012/13



Source: NHS Comparators 2012/13

Hospital admissions for diabetes have generally been increasing over recent years, although there was a slight dip in 2012/13 (see figure 25).

Figure 25: Admitted with primary diagnosis of diabetes, Greenwich registered admitted patient care, 2007-13

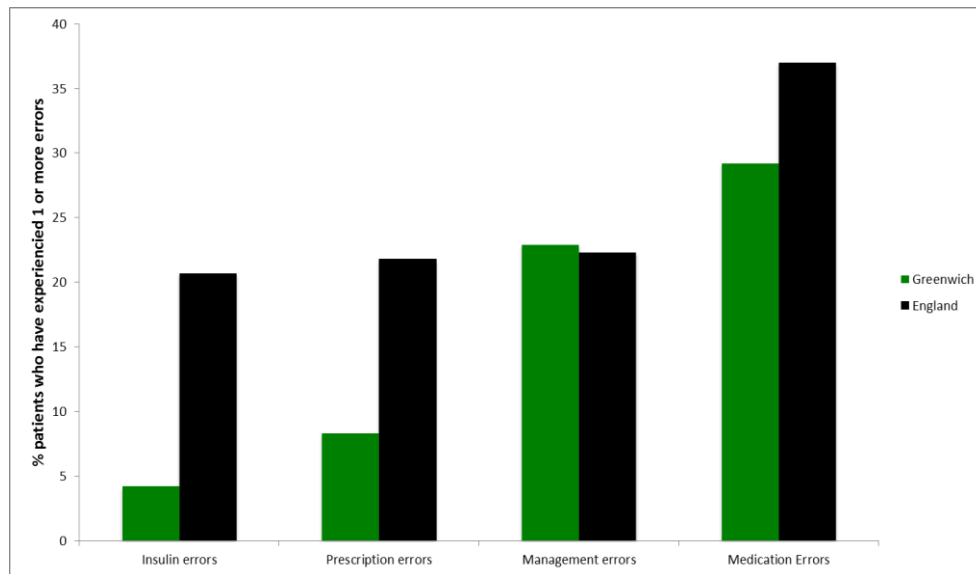


Source: Hospital Episode Statistics, 2014

Hospital Errors

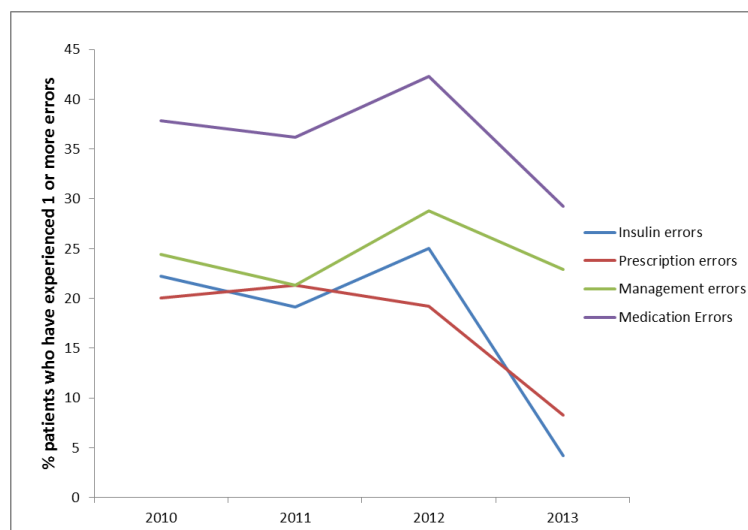
The percentage of hospital errors in England is quite high, for example, over a third of hospital diabetes patients in England experience a medication error. Diabetes patients in Greenwich's local hospital, Queen Elizabeth Hospital, fair a little better when compared with England, particularly with regards to insulin and prescription errors, both ranking in the 1st quartile for England (figure 26). This is a marked reduction from previous years (figure 27). Improvements are still needed for management and medication errors which rank in the 3rd and 2nd quartile respectively in England.

Figure 26: Queen Elizabeth Hospital and England hospital errors for diabetes patients, 2013



Source: National Diabetes Inpatient Audit, 2013

Figure 27: QEH hospital errors time trend, 2010-2013

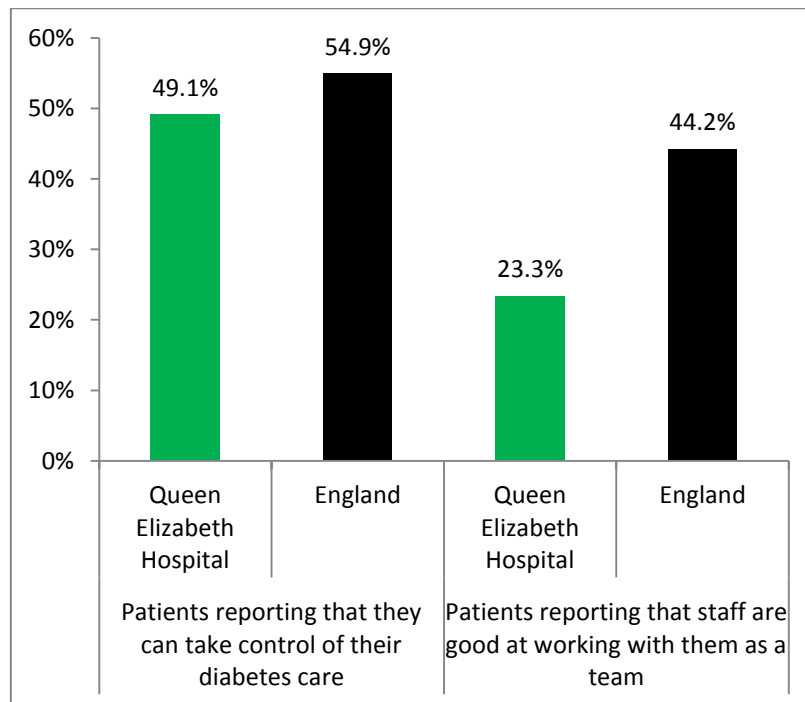


Source: National Diabetes Inpatient Audit, 2013

Self-management

With regards to self-management, fewer than half of Greenwich patients surveyed in the National Diabetes Inpatient Audit feel they can take control of their diabetes, and fewer than a quarter felt that staff looking after them were good at working with them as a team on their diabetes care (see figure 28). This is lower than England rates.

Figure 28: Patient survey data for Queen Elizabeth Hospital and England, 2013

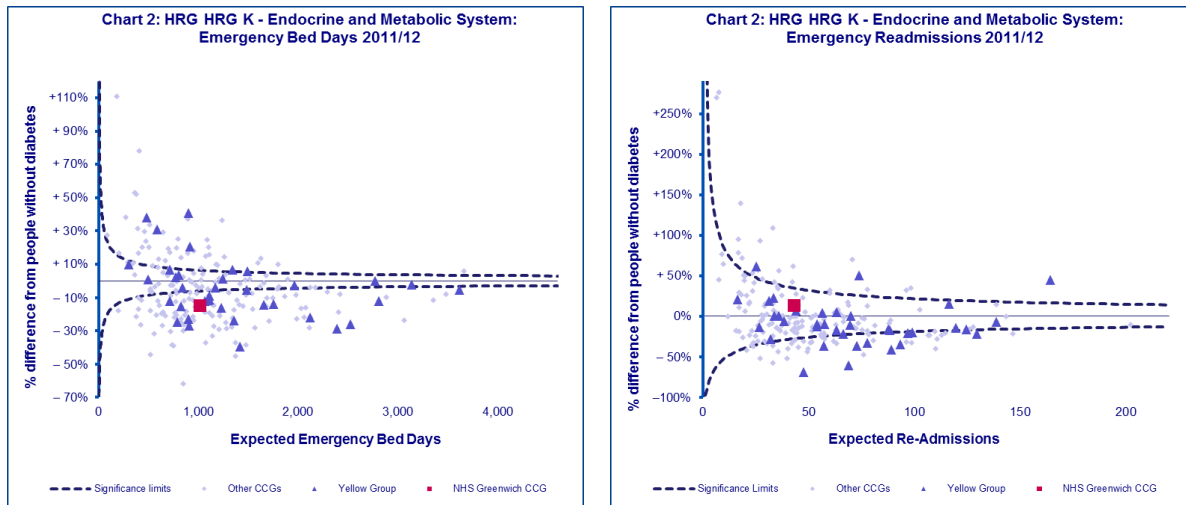


Source: National Diabetes Inpatient Audit, 2013

Variation in Inpatient Activity for Diabetes

The variation in inpatient activity tool allows for a comparison of information between inpatients with diabetes and inpatients without diabetes. For example, in 2011/12 the number of emergency bed days for patients with diabetes was 15% less than would be expected had those with diabetes had the same length of stay as those without, an improvement on the England figure of 8.2% more than expected (see figure 29a). However emergency readmissions for patients with diabetes were 13.8% higher than would be expected had they had the same rates of readmissions as those without diabetes (figure 29b). Again this is an improvement on England figures where emergency readmissions were 138.7% higher than would be expected.

Figure 29a & b: Emergency Bed days and Elective Bed Days against expected for Greenwich and other England PCTs.

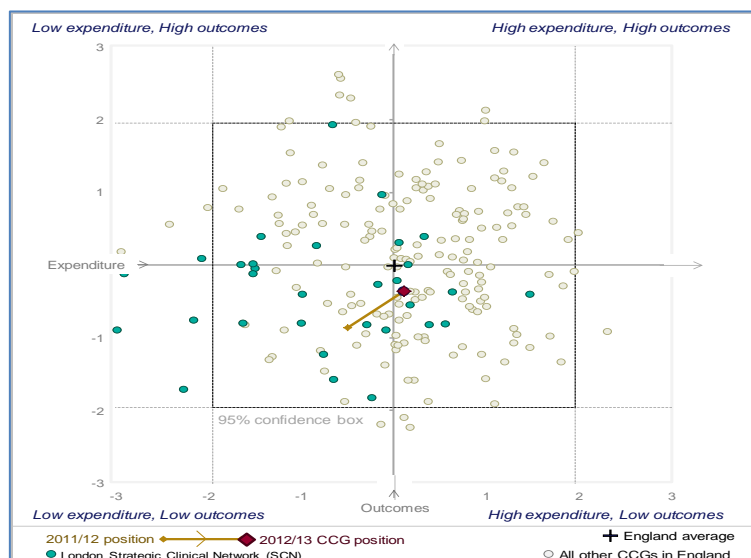


Source: YPHO- Variation in Inpatient Activity: Diabetes, accessed on <http://www.ypho.org.uk/resource/view.aspx?RID=105866>

Outcomes and performance

In 2012/13 the total spend on diabetes prescribing for Greenwich CCG was £284.52 per patient. This is slightly higher to other London CCGs for the same period. However, when looking at spend versus outcomes (in this case, blood glucose outcomes (the numbers of patients with HbA1c of 59mmol/mol or less including exceptions) Greenwich CCG is in the high expenditure, low outcome quadrant. Spending increased from 11/12 and outcomes also increased.

Figure 30: Total spend on diabetes prescribing compared to people with diabetes with a HbA1c of 59mmol/mol or less (including exceptions) for NHS Greenwich compared with other CCGs in the London Strategic Clinical Network (SCN)

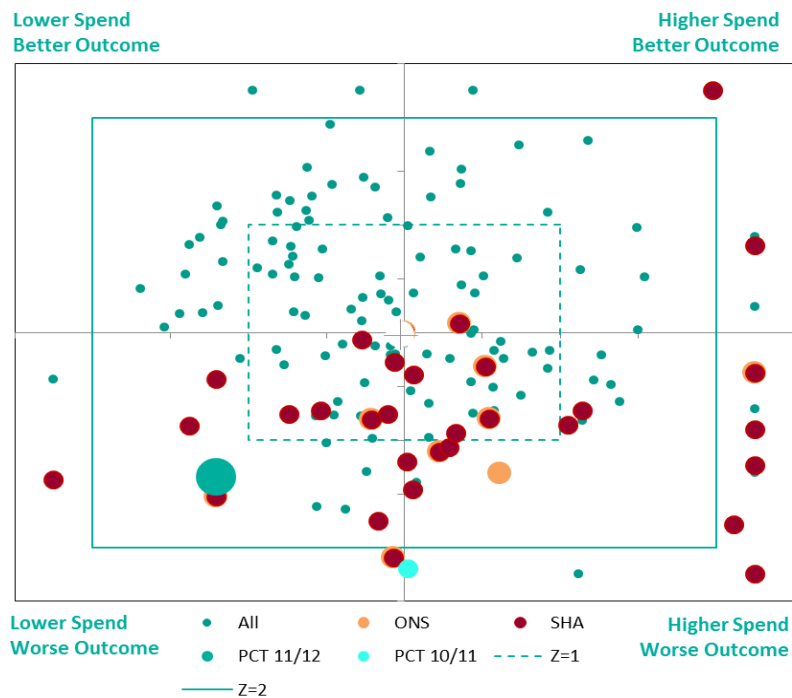


Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

Source: YPHHO- DOVE tool, 2014

Spend on cholesterol medication prescribing in 2011/12 was relatively low compared with other England PCTs, as were the number of patients who reached the quality outcomes framework target of <5mmol cholesterol (figure 31). This is an improvement from the previous year in which Greenwich, with higher spending, produced among the lowest number of patients reaching this cholesterol outcome.

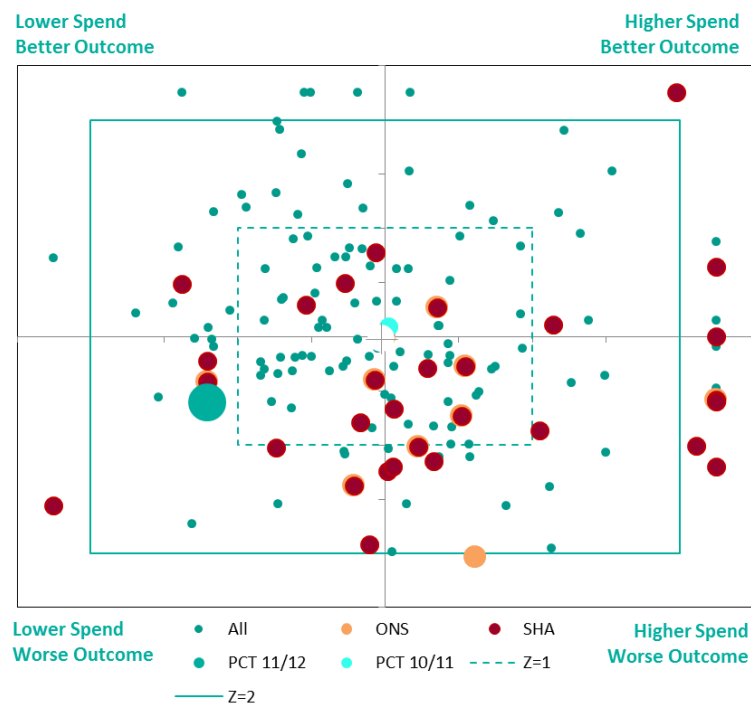
Figure 31: Spend vs. outcomes diabetic patients whose cholesterol was <5mmol, Greenwich PCT in comparison to other England PCTs, 2011/12



Source: PHE SPOT tool, 2014

There were better outcomes for blood pressure in 2010/11 than 2011/12. Fewer diabetic patients in 2011/12 reached the QOF target of blood pressure lower than 145/85 than in 2010/11, spend was also lower in 2011/12 than the previous year (see figure 32).

Figure 32: Spend vs. outcomes, diabetic patients whose last blood pressure was <145/85, Greenwich PCT in comparison to other England PCTs, 2011/12



Source: PHE SPOT tool, 2014

Planned improvements

- The current model of care is being reviewed with the view to improve the quality of care across long-term conditions. The intention is to reduce the impact of co-morbidities by improving integration of services and group working for patient care. These would follow a more integrated pathway approach.
- A multi-agency prevention plan for diabetes is in development led by the Royal Borough of Greenwich Public Health & Well-Being team. It includes the following recommendations:
 - Improved mechanisms for GPs, secondary care and 3rd sector to ensure engagement and optimum referrals e.g. Referral Management Booking Service (RMBS) or other schemes
 - Expand current Walking Away from Diabetes resource in line with example service specification based on current NICE guidance to ensure that service meets NICE criteria and can effectively monitor and engage with significant volume of potential clients.
 - Expansion of other key Greenwich Healthy Living Service areas of activity to ensure that services are capable of processing increased demand.
 - Communication plan and educational events for both Health professionals and members of the public ensuring to promote service and pathways.
- Implementation of roll out of MEOC (Make every opportunity count) leading to greater identification of those at high risk and signposting to preventative services.
- The General Practice Community Incentive Scheme (CIS) reducing variation in practice is being rolled out, and this includes diabetes diagnosis and treatment.

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

- Opportunities for new ways of working in long term conditions including diabetes being explored by CCG including new contractual means e.g. Limited Liability Partnerships (LLPs).

Appendix A: NICE guidance outlining evidence base for Diabetes prevention and management

Available at <http://www.nice.org.uk/GuidanceMenu/Conditions-and-diseases/Diabetes-and-other-endocrinal--nutritional-and-metabolic-conditions#/Guidance/Conditions-and-diseases/Diabetes-and-other-endocrinal--nutritional-and-metabolic-conditions/Diabetes>

NICE Pathways - mapping our guidance	NICE technology appraisals	In development
Diabetes	Canagliflozin in combination therapy for treating type 2 diabetes (TA315) June 2014	Diabetes - buccal insulin [ID311] Technology appraisals TBC
Diabetes in pregnancy	Continuous subcutaneous insulin infusion for the treatment of diabetes mellitus (TA151) July 2008	Diabetes (type 2) - canagliflozin, dapagliflozin and empagliflozin (monotherapy) [ID756] Technology appraisals January 2016
Hyperglycaemia in acute coronary syndromes	Dapagliflozin in combination therapy for treating type 2 diabetes (TA288) June 2013	Diabetes (type 2) - empagliflozin [ID641] - Appraisal consultation in progress 28 August - 18 September 2014 Technology appraisals December 2014
Preventing type 2 diabetes	Exenatide prolonged-release suspension for injection in combination with oral antidiabetic therapy for the treatment of type 2 diabetes (TA248) February 2012	Diabetes in children and young people NICE guidelines August 2015
Stroke	Fluocinolone acetonide intravitreal implant for treating chronic diabetic macular oedema after an inadequate response to prior therapy (rapid review of technology appraisal guidance 271) (TA301) November 2013	Diabetes in pregnancy - Guideline consultation in progress 11 September - 23 October 2014 NICE guidelines February 2015
NICE advice	Guidance on the use of long-acting insulin analogues for the treatment of diabetes – insulin glargine (TA53) December 2002	Diabetic retinopathy - ruboxistaurin [ID382] Technology appraisals TBC
Renin-angiotensin system drugs (KTT2) January 2013	Guidance on the use of patient-education models for diabetes (TA60) April 2003	Implantation of a duodenal-jejunal bypass sleeve for the management of type 2 diabetes Interventional procedures TBC
Type 1 diabetes: insulin degludec (ESNM24) September 2013	Liraglutide for the treatment of type 2 diabetes mellitus (TA203) October 2010	Macular oedema (diabetic) - aflibercept [ID717] Technology appraisals June 2015
Type 2 diabetes mellitus (KTT12) January 2013	Ranibizumab for treating diabetic macular oedema (rapid review of technology appraisal guidance 237) (TA274) April 2013	Macular oedema (diabetic) - pegaptanib sodium [ID452] Technology appraisals TBC
Type 2 diabetes: alogliptin (ESNM20) May 2013	NICE quality standards	Managing blood glucose levels in people with Diabetes Mellitus: The MiniMed Paradigm Veo System (and other alternative technologies identified in scoping) October 2015
Type 2 diabetes: empagliflozin (ESNM35) March 2014	Diabetes in adults quality standard (QS6) March 2011	Type 1 Diabetes (update) NICE guidelines August 2015
Type 2 diabetes: insulin degludec (ESNM25) September 2013	NICE interventional procedures guidance	Type 2 diabetes NICE guidelines August 2015
Type 2 diabetes: lixisenatide (ESNM26) September 2013	Allotopic pancreatic islet cell transplantation for type 1 diabetes mellitus (IPG257) April 2008	
NICE guidelines	Autologous pancreatic islet cell transplantation for improved glycaemic control after pancreatectomy (IPG274) September 2008	
Diabetes in pregnancy (CG63) March 2008		
Hyperglycaemia in acute coronary syndromes (CG130) October 2011		
Preventing type 2 diabetes: population and community-level interventions (PH35) May 2011		
Preventing type 2 diabetes: risk identification and interventions for individuals at high risk (PH38) July 2012		
Type 1 diabetes (CG15) July 2004		
Type 2 diabetes (CG87) May 2009		
Type 2 diabetes (partially updated by CG87) (CG66) (CG66) May 2008		

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

Appendix B

Treatment target achievement rates for all patients in NHS Greenwich CCG and England and Wales by treatment target, diabetes type and audit year

		All diabetes ^a			Type 1			Type 2		
		2009-10	2010-11	2011-12	2009-10	2010-11	2011-12	2009-10	2010-11	2011-12
HbA1c <48mmol/mol (6.5%) ^b	CCG/LHB	17.5% ■	24.0% ■	24.9% ■	5.6% ■	8.0% ■	8.8% ■	18.6% ■	25.2% ■	26.0% ■
	England & Wales	25.0% ■	24.8% ■	24.7% ■	7.1% ■	6.8% ■	6.5% ■	26.7% ■	26.4% ■	26.2% ■
HbA1c ≤58mmol/mol (7.5%) ^b	CCG/LHB	51.0% ■	60.0% ■	62.8% ■	26.1% ■	29.2% ■	34.0% ■	53.4% ■	62.4% ■	64.8% ■
	England & Wales	63.3% ■	63.3% ■	62.7% ■	28.7% ■	28.1% ■	27.0% ■	66.6% ■	66.5% ■	65.8% ■
HbA1c ≤86mmol/mol (10.0%) ^b	CCG/LHB	86.0% ■	89.0% ■	88.9% ■	76.1% ■	81.6% ■	78.3% ■	87.0% ■	89.6% ■	89.6% ■
	England & Wales	92.5% ■	92.1% ■	91.9% ■	83.2% ■	82.4% ■	81.9% ■	93.4% ■	93.0% ■	92.8% ■
Target BP ^c	CCG/LHB	40.1% ■	36.6% ■	38.7% ■	58.2% ■	51.2% ■	55.9% ■	38.5% ■	35.4% ■	37.5% ■
	England & Wales	35.2% ■	36.2% ■	38.8% ■	49.1% ■	49.9% ■	51.9% ■	34.0% ■	35.0% ■	37.7% ■
BP <140/80 ^d	CCG/LHB	46.7% ■	43.9% ■	47.4% ■	61.6% ■	59.1% ■	63.2% ■	45.3% ■	42.6% ■	46.3% ■
	England & Wales	43.9% ■	44.6% ■	48.1% ■	54.7% ■	55.3% ■	57.9% ■	42.9% ■	43.7% ■	47.3% ■
Cholesterol <4mmol/L	CCG/LHB	30.8% ■	34.8% ■	38.0% ■	24.8% ■	27.4% ■	25.8% ■	31.4% ■	35.1% ■	38.5% ■
	England & Wales	40.0% ■	40.7% ■	40.4% ■	30.5% ■	30.4% ■	29.7% ■	40.8% ■	41.6% ■	41.3% ■
Cholesterol <5mmol/L	CCG/LHB	68.8% ■	73.3% ■	75.6% ■	62.8% ■	70.0% ■	69.2% ■	69.4% ■	73.4% ■	75.9% ■
	England & Wales	77.7% ■	77.6% ■	77.0% ■	72.6% ■	72.0% ■	71.1% ■	78.3% ■	78.1% ■	77.5% ■
Meet all treatment targets ^e	CCG/LHB	16.0% ■	18.3% ■	20.2% ■	11.4% ■	12.6% ■	14.7% ■	16.4% ■	18.6% ■	20.6% ■
	England & Wales	19.3% ■	19.7% ■	20.8% ■	11.9% ■	11.8% ■	11.8% ■	19.9% ■	20.3% ■	21.5% ■

^a All diabetes includes maturity onset diabetes of the young (MODY), other specified diabetes and not specified diabetes.

^b For patients under 12 years of age, 'all treatment targets' is defined as HbA1c only as other treatment targets are not recommended in the NICE guidelines for this age group.

^c Blood pressure target of <140/80 applied to those patients without recorded eye, kidney or vascular disease (EKV-) and blood pressure target of <130/80 applied to those patients with recorded eye, kidney or vascular disease (EKV+).

^d BP <140/80 does not take into account whether or not patients have eye, kidney or vascular disease.

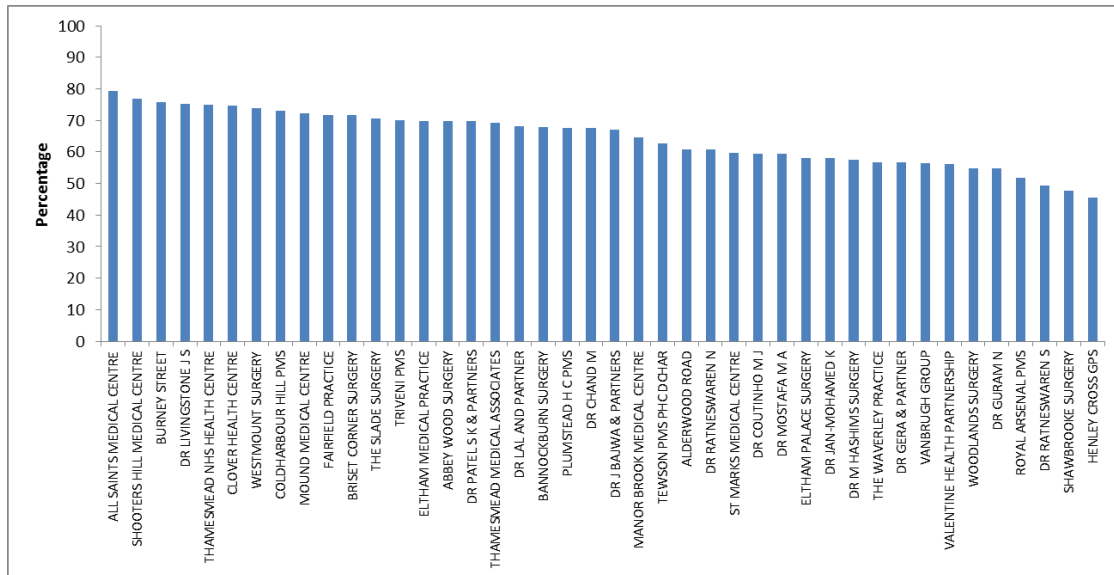
^e Where patients have achieved HbA1c ≤58mmol/mol, cholesterol <5mmol/L and their relevant blood pressure target.

RAG (Red-Amber-Green) Score Key	
■	<70%
■	70% - 90%
■	>90%

Source: National Diabetes Audit 2011-12, HSCIC (2013).

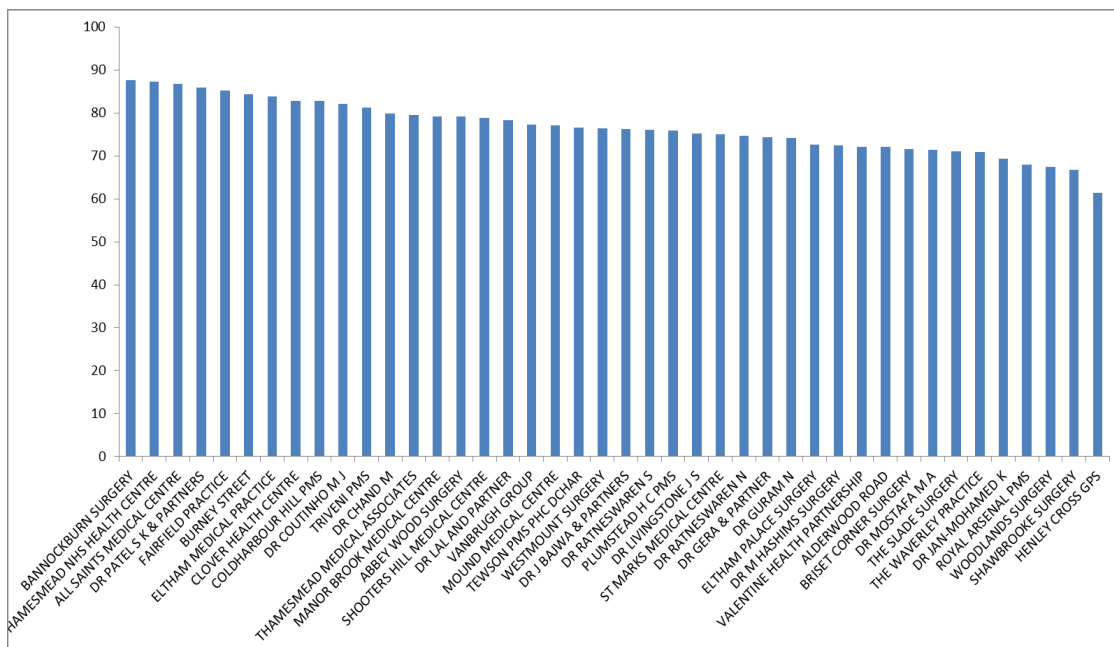
Appendix C

The percentage of patients with diabetes in whom the last IFCC-HbA1c is 59 mmol/mol or less in the preceding 15 months. Underlying achievement (net of exceptions) (DM26) by Greenwich GP surgery, 2012/13



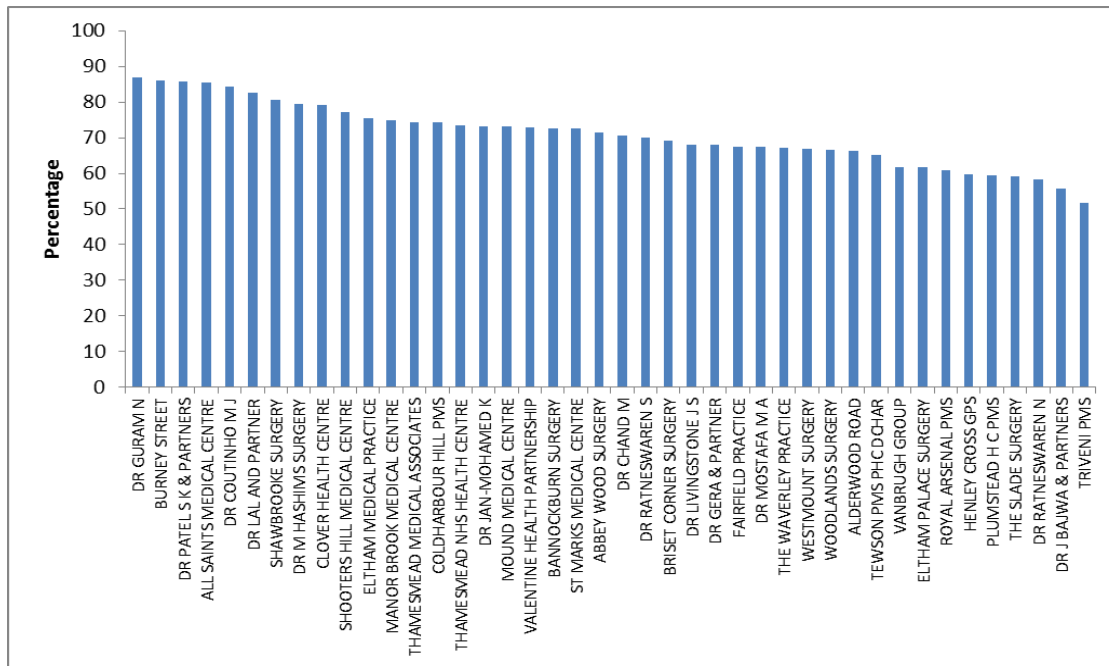
Source: HSCIC, 2014

The percentage of patients with diabetes whose last measured total cholesterol within the preceding 15 months is 5mmol/l or less Underlying achievement (net of exceptions) by GP surgery, 2012/13.



Source: HSCIC, 2014

The percentage of patients with diabetes in whom the last blood pressure is 140/80 or less, underlying achievement (net of exceptions) (DM31), by Greenwich GP surgery, 2012/13



Source: HSCIC, 2014

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