

Decision Maker: HEALTH SCRUTINY PDS SUB COMMITTEE

Date: 4th November 2015

Decision Type: Non-Urgent Non-Executive Non-Key

Title: Diabetes Prevention Intervention

Contact Officer: Dr Agnes Marossy
Tel: 020 8461 7531 E-mail: agnes.marossy@bromley.gov.uk

Chief Officer: Nada Lemic, Director of Public Health

Ward: Boroughwide

1. Reason for report

This report provides an update on the Diabetes Prevention Programme Pilot resourced from funding approved to be carried forward from the weight management budget, previously approved by the Executive in January 2014.

The purpose of the pilot is to evaluate the effectiveness and cost effectiveness of an intervention to prevent diabetes in Bromley.

2. **RECOMMENDATION(S)**

The Members of the PDS committee are asked to note and comment on the progress made to date.

Corporate Policy

1. Policy Status: In line with current policy, including BBB, Health and Wellbeing Board Strategy and ECHS plan.
2. BBB Priority – A Healthy Bromley.
Health and Wellbeing Board Strategy, obesity and diabetes priorities.

The Health & Wellbeing Strategy aims to:

- Slowdown the rise in the number of new cases of diabetes;
 - Continue to slow the rate of increase of people diagnosed with hypertension;
 - Raise awareness on the links to obesity, diabetes and hypertension.
-

Financial

1. Cost of proposal: £49,176
 2. Ongoing costs: None
 3. Budget head/performance centre: 8001603600
 4. Total current budget for this head: £53,930
 5. Source of funding: Carry forward of underspend from 2013-14 budget.
-

Staff

1. Number of staff (current and additional): Delivered from existing Public Health Officer resources, led by Public Health Programme Manager.
 2. If from existing staff resources, number of staff hours:
-

Legal

1. Legal Requirement: NHS Health Checks are a statutory responsibility of the Local Authority, there is a duty of care to offer a service to address a patient's condition once the patient is identified as being at risk of developing diabetes through NHS Health Check screening.
 2. Call-in:
-

Customer Impact

1. Estimated number of users/beneficiaries (current and projected): Current pilot had 129 beneficiaries start the programme.
-

Ward Councillor Views

1. Have Ward Councillors been asked for comments? Not at this stage.
2. Summary of Ward Councillors comments:

* marked terms – for a full explanation see Glossary of terms – Section 6.

3. COMMENTARY

Underspend from the obesity budget was approved to be carried forward from 2013-14 to 2014-15 to fund two pilot weight management schemes each to a value of £49,000.

The proposals were for;

1. Diabetes Prevention Programme Pilot – reported here.
2. Extension to the current Tier 2 weight management to provide for a service for higher weight patients. This proposal was not taken forward as a national decision was made for the commissioning of such services to be the responsibility of the CCG and not Public Health.

3.1 Background

Diabetes Mellitus* Prevalence: Diabetes prevalence in Bromley has been rising consistently since GP Registers were established in 2002. There are 14,013 people on the diabetes register (2013/14) compared to 4,846 in 2002.

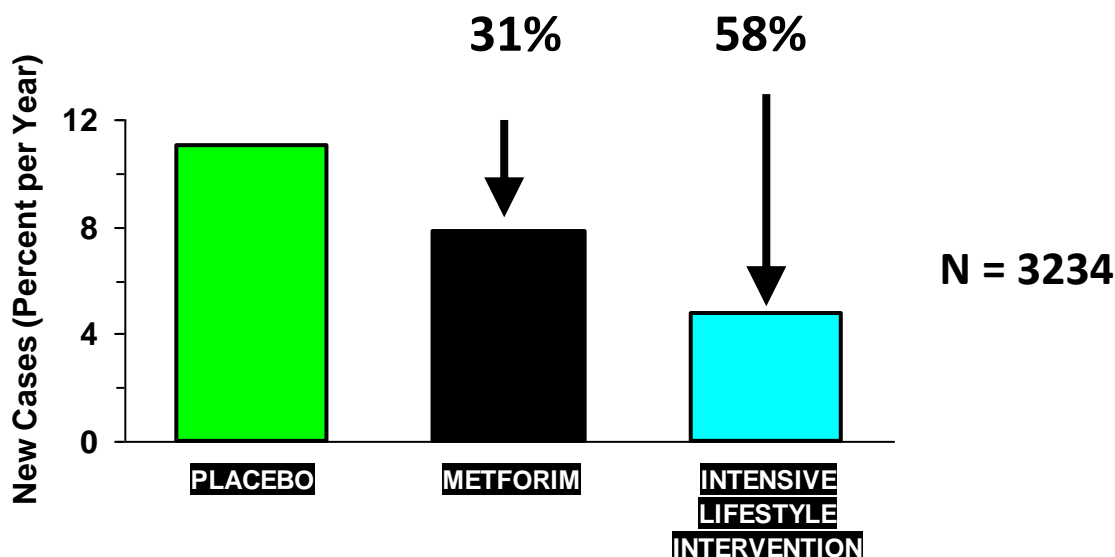
Identification of high risk patients: A Diabetes Audit was undertaken by the Public Health vascular team in 42 out of the 45 GP Practices covering a period of 16 months (from 1 April 2013 – 31 August 2014) which identified 11,451 patients at high risk of developing diabetes (see Appendix 1 – prevalence per ward).

Public Health England recently published modelled estimates which suggest that there are 29,872 residents at high risk of developing diabetes in Bromley (11.5% prevalence) compared to 11.4% across England (PHE, 2015ⁱ).

3.2 Evidence of Diabetes Prevention

There is substantial evidence to support that intensive lifestyle interventions reduce the rate of progression to type 2 diabetes or prevent it altogether. The US Diabetes Prevention Program (DPP) randomised clinical trial showed a 58% reduction of diabetes incidence with intensive lifestyle intervention versus only a 31% reduction with metformin (drug intervention), compared to placebo at 2.8 years (1996-1999)ⁱⁱ. These beneficial effects were shown to be sustainable in the subsequent 10-year follow up outcome studyⁱⁱⁱ. Diabetes incidence was reduced by 34% in the lifestyle group and 18% in the metformin group (drug intervention), compared with placebo.

Diabetes Incidence in US DPP (2.8yrs)



3.3 Bromley Diabetes Prevention Programme Pilot

Weight Watchers conducted a 12 month study in the USA to support patients through an intensive lifestyle support programme which showed similar findings, a significant reduction in blood glucose and weight compared to controls. Bromley commissioned the Weight Watchers diabetes prevention programme to reduce risk in Bromley.

The Weight Watchers programme consists of a one year intensive lifestyle support programme, focusing on weight reduction through education and implementation of a healthy lifestyle, increased whole foods and physical activity (see Appendix 2 – Service Description). All patients will have completed the 12 month programme by April 2016.

3.4 Patient Recruitment

- 166 patients were referred
- 132 patients attended the activation session
- 129 started the 12 month programme
- 8 patients have dropped out (2 of which have been removed from the study due to ill health).

Table 1.1 Baseline characteristics – of those attending activation session (n=117)

Demographics	WWDPP Bromley
Gender -- Female -- Male	88 (75%) 29 (25%)
Ethnicity	BME 10/114 (9%)
Deprivation	15/117 (12.8%) from the most deprived quintile*
	Mean ± SD
Age (years)	58 ± 9
BMI (kg/m ²)	35.58 ± 5.5
HbA1c (mmol/mol)*	43.45 ± 1.42
HbA1c (%)*	6.14 ± 0.13
FPG (mmol/L)*	6.14 ± 0.39

Baseline characteristics to note:

- 25% are male (higher than Tier 2 national average 10% and Bromley Tier 2 at 17%). More men are at high risk of developing diabetes both locally and nationally.
- Mean age is quite high (58 years) because a large percentage of the patients are identified at NHS Health Checks. Age range: 33 to 80 years.
- BMI* criteria: Range: BMI ≥27.5 (for ethnic minorities*) to 45.
- 9% of patients are from a black or minority ethnic (BME) community. If the programme is rolled out to all GPs then recruiting BME communities will be a priority due to their genetic predisposition for being at higher risk of developing type 2 diabetes. The expansion to the programme will increase the equity of access.

Patients have an increased risk of cardiovascular disease;

- 71% (83) at risk or known to have hypertension*
- 28% (32) at risk or known to have hyperlipidaemia*
- 32 of 78 (41%) who have been assessed, have >10% risk of heart attack or stroke in the next ten years.

Diabetes Prevention Outcomes - the early findings;

The early findings include the 6 month blood test results of 62 patients.

Mean reduction in diabetes risk n = 62:

- ✓ 38 (70%) patients no longer at risk
- ✓ 10 (19%) patients have reduced risk
- ✓ 2 (4%) patient's risk stayed the same
- X 4 (7%) patients have increased risk
- X 8 patients had no comparable baseline

Attendance

- 62 out of 81 patients (77%) have a result at 6 months to date.

The mean risk of developing diabetes has reduced from being in the 'at risk of developing diabetes' category (Mean HbA1c: 6.14% or 43.34mmol/mol) to 'no longer being at risk of developing diabetes' (Mean HbA1c: 5.82% or 40.0mmol/mol) for the majority of patients, a mean reduction of -0.32%. The national evidence cites that a significant result for an intensive lifestyle programme such as this is to not increase risk, they look for no change in HbA1c.

3.5 Next steps

The National Diabetes Prevention Programme:

In March 2015, NHS England, Public Health England and Diabetes UK announced that the UK will undertake the first ever at-scale NHS Diabetes Prevention Programme. Part of delivering the commitment set out in the NHS Forward View and PHE's Evidence into Action last year. The format of the NHS Diabetes Prevention Programme went out for consultation from August - September 2015.

South London Expression of Interest:

At the same time areas in the UK were asked to submit 'Expressions of Interest' to become the first areas in the country to deliver the nationally funded prevention programme.

South East and South West London CCGs and Local Authorities have submitted a joint sub regional bid. Southwark is already one of the original seven 'demonstrator sites' and Bromley has extensive experience of implementation in this field. The National Diabetes Prevention Programme team invited Bromley Public Health to their Testimonial Day to present the findings of our programme documented in this report. It is hopeful that the South London application will be successful due to the size, demography and experience within South London.

4. FINANCIAL IMPLICATIONS

Diabetes Prevention Programme	Cost per item	Total Cost
Activation Sessions	£450	14 x £450 Activation session = £6,300
Programme Packs	£75 per 12 week pack	570 packs x £75 per pack = £42,750
Launch Event	£126 Bromley Library Hall Hire	£126
Total Cost of Programme		£49,176

Cost Avoidance

This is a cost avoidance initiative. The current pilot has produced a cost avoidance of £61,324 plus the additional benefits listed in Table 1.2, (See Appendix 3 - Cost of Diabetes to the Health and Care economy).

5. POLICY IMPLICATIONS

This work is in line with best practice national policy driven by the NHS England 5 year forward, supported by NICE guidance.

Non-Applicable Sections:	LEGAL and PERSONNEL IMPLICATIONS
Background Documents: (Access via Contact Officer)	<ol style="list-style-type: none">1. Executive Paper CS14011 – 22/01/2014.2. National Diabetes Programme Expression of Interest, South London bid (14 pages).3. Public Health England - A systematic review and meta-analysis assessing the effectiveness of pragmatic lifestyle interventions for the prevention of type 2 diabetes mellitus in routine practice (173 pages).

6. GLOSSARY OF TERMS

Diabetes Mellitus – Also known as type 2 diabetes causes a person's blood sugar level to become too high. Type 2 diabetes occurs when the body doesn't produce enough insulin to function efficiently, or the body's cells are ineffective at using the insulin produced. This means that glucose stays in the blood and isn't used as fuel for energy.

A problem because it can cause serious long-term health problems; it is the most common cause of vision loss and blindness in people of working age, responsible for most cases of kidney failure and lower limb amputation (other than accidents) and people with diabetes are up to five times more likely to have cardiovascular disease (such as a stroke) than those without diabetes

Deprived quintile – The Indices of Deprivation provide a set of relative measures of deprivation for small areas (Lower-layer Super Output Areas) across England. The relative deprivation of neighbourhoods are ranked into quintiles, which represents 20% of a given population. Deprivation was measured in this pilot, patients from the most deprived quintile are shown in Table 1.1. Areas in the most deprived quintile experience the poorest health outcomes.

HbA1c – A blood test can measure a patient's glycated haemoglobin. By measuring glycated haemoglobin, clinicians are able to get an overall picture of a patient's average blood sugar levels over a period of weeks/months. This is important as the higher the HbA1c, the greater the risk of developing diabetes and related complications. The measure can be expressed as mmol/mol or a %.

FPG – A simple blood test measures Fasting Plasma Glucose, blood is taken after several hours of fasting (8-10hours) to measure the glucose in the blood. This test helps diagnose diabetes or those at high risk.

Clinicians are advised to use HbA1c but where this is not available FPG has been used.

BMI - Body mass index is a measure of whether you're a healthy weight for your height.

BMI \geq 27.5 for ethnic minorities - New BMI advice was issued in July 2013 by the National Institute for Health and Care Excellence (NICE) to south Asian and Chinese adults, who have a higher risk of developing type 2 diabetes than white populations. Asians with a BMI of 27.5 or more are at high risk of developing type 2 diabetes.

Hypertension - High blood pressure. If untreated it increases the risk of heart attack, heart failure, kidney disease, stroke or dementia.

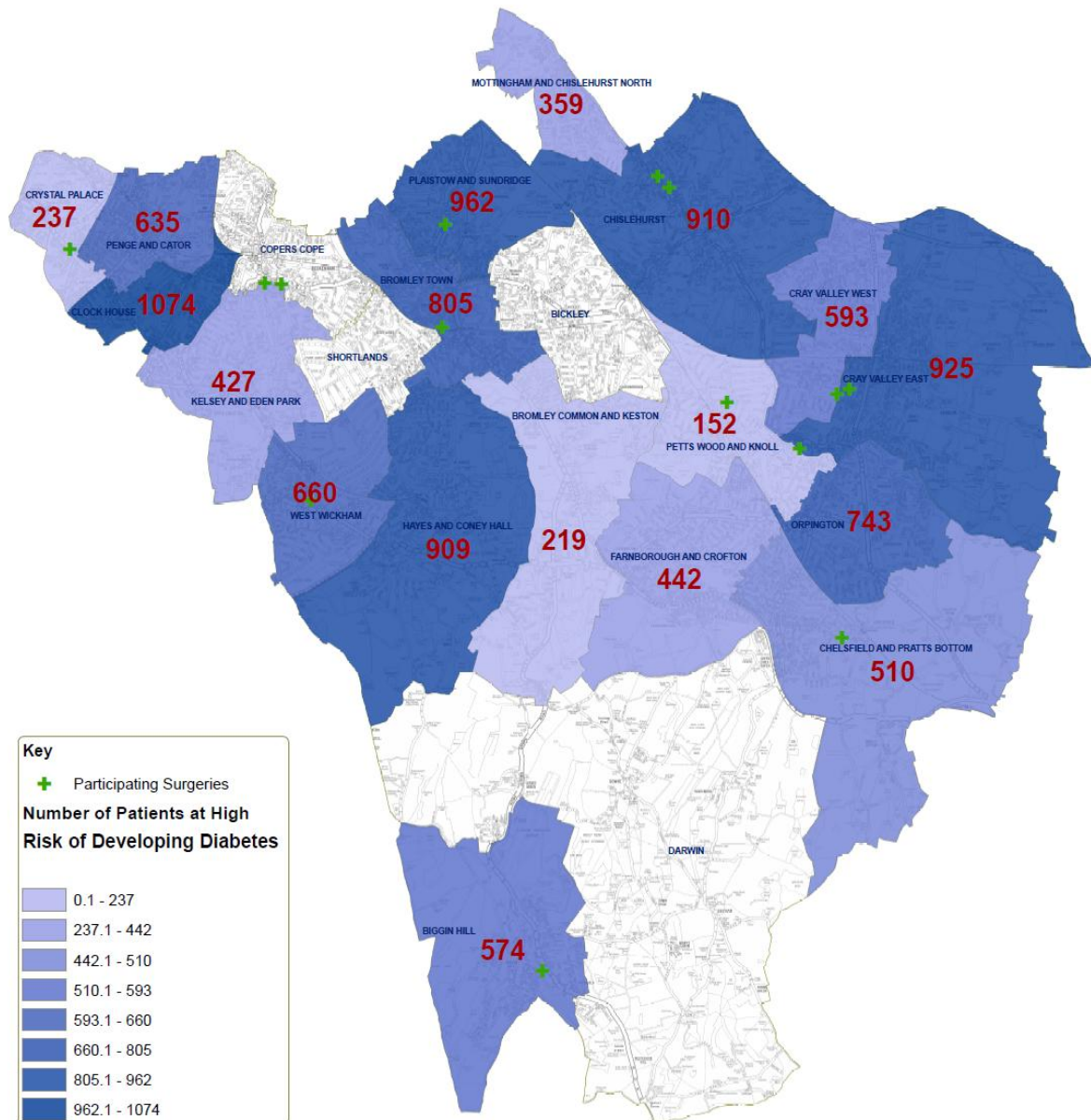
Hyperlipidaemia - Abnormally elevated levels of any or all lipids and/or lipoproteins in the blood. Most commonly used when a patient has high cholesterol. It causes an increased risk of coronary heart disease.

Appendix 1

Prevalence of diabetes risk per ward.



Prevalence of Diabetes Risk in Bromley



* Map: Number of high risk of developing diabetes patients identified per GP practice.

There are patients that are at high risk of developing diabetes within the four unshaded wards however, patients were recorded by GP practice address rather than lower super output area (LSOA) so do not show on the map above.

Appendix 2

Service Description

The intervention provides practical, tailored advice, support and encouragement to help people be more physically active, achieve and maintain a healthy weight and eat a healthier diet for at least 12 months. Quarterly monitoring is being undertaken by Primary Care and Weight Watchers as well as 24 month follow up.

The 12month programme includes;

Referral Hub

- Patient calls referral hub, identified by NHS number.
- Activation session booked.
- Patients receives welcome call prior to the activation session.
- Patient attends activation session.

Activation Session

- Patient's individual lifestyle goals identified personal management plan created, including:
 - ✓ Individual weight loss goal - at least a 7% weight loss
 - ✓ Physical activity goal - achieve 150 minutes exercise/week
- Teach patients how to report accurate physical activity levels and conduct reliable waist circumference measurements.
- Patient is given one year membership to Weight Watchers (online and community based).

Weekly Sessions

- Patients attend Weight Watchers sessions for 1 year.
- 4 courses consisting of 12 sessions each.
- Dedicated phone line for patients
- Redemption vouchers for a free pedometer / healthy eating cookbook and eat and shop guides – (redeem in meetings).
- Online support

Review of outcome measures

- Review of patient at session 12 in each course to monitor progress; Take measurements and gather self-reported evaluation questions
- Repeat blood test at 6, 12 and 24 at surgery.
- Repeat blood pressure measurement at 3, 6, 9, 12 and 24 months.
- Follow up weight at 24 months using proforma.
- Non-attendees to be contacted via text, care notes & telephone (at least 2 attempts) by meeting leader and every 3 months by co-ordinator. If no longer able or willing to attend feedback will be obtained.

The referral hub, the activation sessions and the on-going service is provided from community based venues at a variety of times during the week and weekends to suit the patients' needs. There are 31 weekly Weight Watchers meetings available in Bromley, the majority in deprived wards.

Appendix 3

The Cost of Diabetes to the Health and Care economy – why invest.

The current pilot has produced a cost avoidance of just over £60k, which encompass both direct healthcare costs in the short term and cost avoidance in the longer term.

Table 1.2: Treating adults who are high risk of type 2 diabetes, with an intensive lifestyle intervention will generate the following savings;

Calculated savings treating 100 adults via NICE recommended ILIs.	Diabetes Prevention Programme Pilot treating 120 patients (Public Health Budget £49,176 investment).
To prevent 1 new case of diabetes during a period of 3 years, numbers needed to treat is 6.9 ^{iv} .	17 cases of Type 2 Diabetes prevented within 3 years.
Prevent 162 missed work days ^v	Prevent 195 missed work days ²
Avoid the need for BP/Cholesterol pills in 11 people ^{vi}	Avoid the need for BP/Cholesterol pills in 13 people ³
Add the equivalent of 20 good years of health ^{vii}	Add the equivalent of 24 good years of health
An average Diabetic case costs £6,500 direct healthcare costs in the first 5 years ^{xix}	Avoid £110,500 in healthcare costs over 5 years.
Total Savings = Cost - Savings	£49,176 - £110,500 = £61,324 saving

The best way to reduce the holistic whole life cost of managing a patient with diabetes is to prevent Type 2 diabetes in the first place.

Diabetes is expensive, costing the NHS £10 billion each year^{viii}. These costs are mainly associated with the complications of diabetes, e.g. amputation, blindness, kidney failure, stroke, etc. The Health and Social Care Information Centre^{ix} shows that “prescribing for diabetes accounted for 4.4% of total items and 9.5% of the total cost of prescribing in 2013-14, compared with 3.8% and 6.6% respectively in 2005-6”. Offering intensive lifestyle interventions to those at high risk will not only help to reduce future costs of diabetic complications, but will help to avoid these immediate costs that burden short term budgets.

There will ultimately be savings to adult social care budgets due to increased number of good health years and decreased morbidity. Although these are not quantifiable in fixed cashable savings, it demonstrates the cumulative effect of taking such a proactive self-management approach to avoid secondary and bed base care packages in the future. There is also a beneficial effect on the local economy due to reduced absenteeism from work. Patients that are morbidly obese (16 eligible patients on programme) are 3 times more likely to need social care than those who are a healthy weight (Making the Case for Tackling Obesity, 2015)^x. Morbid obesity reduces life expectancy by 8-10 years and has a considerable impact on quality of life.

Obesity is a key risk factor for developing Type 2 Diabetes, 80% of people with type 2 diabetes are overweight or obese¹. Type 2 diabetes is currently causing a significant drain on resources, and will continue to do so as the public health outcomes framework 2013 reported that 65% of Bromley’s population are either overweight (≥ 25 BMI) or obese (≥ 30 BMI), which represents approximately 205,820 adults. This is higher than the England average (63.8%), and is ranked as the third highest prevalence of excess weight in London. As weight increases the risk of developing Type 2 Diabetes increases. In Bromley, the estimated prevalence of obesity is 21.8% (2013 Health Profile), which represents 54,163 adults.

REFERENCES

- i Public Health England. NHS Diabetes Prevention Programme (NHS DPP) Prevalence estimates of non-diabetic hyperglycaemia. August 2015.
- ii Knowler WC, Barrett-Connor E, Fowler SE, et al.: Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med* 2002; 346(6):393-403
- iii Knowler WC, Fowler SE, Hamman RF, et al.: 10-year follow-up of diabetes incidence and weight loss in the Diabetes Prevention Program Outcomes Study. *Lancet* 2009; 374(9702):1677-86.
- iv Ackermann et al (2008) Translating the DPP into the community. *Am J Prev Med* 35 (4), pp. 357-363; estimates scaled to 2008
- v DPP Research Group (2003) Within-trial cost-effectiveness of lifestyle intervention or metformin for the primary prevention of type 2 diabetes. *Diabetes Care*;26(9):2518-23.
- vi Ratner et al (2005) Impact of Intensive Lifestyle and Metformin Therapy on Cardiovascular Disease Risk Factors in the Diabetes Prevention Program. *Diabetes Care* 28 (4): 888-894.
- vii Herman et al (2005) The cost-effectiveness of lifestyle modification or metformin in preventing type 2 diabetes in adults with impaired glucose tolerance. *Ann Intern Med.* 2005;142:323-32.
- viii Hex N, Bartlett C, Wright D et al. (2012) Estimating the current and future costs of type 1 and type 2 diabetes in the UK, including direct health costs and indirect societal and productivity costs. *Diabetic Medicine* 29: 855–62
- ix Prescribing for Diabetes, England - 2005-06 to 2013-14. Health & Social Care Information Centre. Publication date: August 12, 2014
- x Public Health England. Making the Case for Tackling Obesity, 2015.