Prevention of diabetes through the NHS Health Checks: Using audit to improve patient outcomes

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Aim of the audit:
To ensure patients identified at increased risk of diabetes at the NHS Health Check 2011 receive appropriate assessment and management.

Objectives:
1. To develop audit standards to assess the quality of current services in identifying patients at high risk of diabetes.
2. To assess current practices in Bromley against these standards
3. To use the audit findings to improve patient outcomes
NHS Health Checks Diabetes Filter

Body Mass Index ≥ 30 (or ≥ 27.5 if South Asian or Chinese)

Blood Pressure ≥ 140 mmHg Systolic and/or ≥ 90 mmHg Diastolic

South London NHS Health Checks Diabetes Filter Pathway

• Identification of risk
• Provision of intensive lifestyle programme
• Review
## Audit Standards

### Standard 1:
If the individual has a Body Mass Index $\geq 30$ (or $\geq 27.5$ if South Asian or Chinese Population) or Blood Pressure $\geq 140$ mmHg Systolic and/or $\geq 90$ mmHg Diastolic, an HbA1c test or fasting plasma glucose (FPG) is required.

### Standard 2:
If patients have a raised HbA1c $\geq 42 - <48$ mmols/mol (6.0-6.4%) or FPG $\geq 5.5 - \leq 6.9$ mmol/l, they should have had a repeat blood test for HbA1c or Fasting Blood glucose within 2 years of the NHS Health Check.

### Standard 3:
If patients have a raised HbA1c of $\geq 42 - <48$ mmols/mol (6.0-6.4%) or FPG $\geq 5.5 - \leq 6.9$ mmol/l they should be coded with an appropriate READ code indicating level of risk of diabetes and/or diagnostic code of pre-diabetic state e.g. Impaired Fasting Glycaemia.

### Standard 4:
If patients have a raised HbA1c of $\geq 42 - <48$ mmols/mol (6.0 – 6.4%) or FPG $\geq 5.5 - \leq 6.9$ mmol/l, they should receive **intensive** lifestyle intervention (this will be measured by assessment of number of consultations for lifestyle intervention and any referrals to exercise programme, weight management, dietician, smoking cessation.)

### Standard 5:
Patient identified as high risk of diabetes should have improved risk factor profiles at 1-2 years:
- Increased physical activity GPPAQ.
- Weight loss been achieved and maintained.
- Waist circumference reduced and maintained.
- Repeated Blood test 1-2 yearly.
Audit Standards

If the Diabetes Filter was met –
1. Did they have a blood test to assess for diabetes risk?

If found to be at high risk of diabetes - HbA1c ≥42 - <48 mmols/mol (6.0 - 6.4%) or FPG ≥5.5 - ≤6.9 mmol/l

2. Did they have a repeat blood test within 2 years?
3. Did they have a READ code indicating high risk of diabetes?
4. Did they receive any lifestyle interventions?
5. Did their risk factor profile improve within 1-2 years?
Audit process

Phase I - Preparation
• Support gained from local diabetes network group, local CVD strategy group, local authority councillors and LMC.
• Expression of interest sought from GP practices – incentivised.
• Development of standards.
• Development of EMIS searches and Practice Pack.

Phase II – Method and implementation
• Lead clinician identified in each practice.
• Computer searches performed.
• Consent letters sent to patients prior to comprehensive notes review by PHVN.

Phase III – Review and intervention
• Data analysis assessed against audit standards.
• Intervention to ‘missed patients’ offering assessment of risk of diabetes
• The results of the audit were used to address gaps in identification processes and inform GP Practices about their management of patients at High Risk of Diabetes.
• Re-audit.
Baseline number of NHS Health Checks 2011-2013

15,367

Patients who met the diabetes filter 5,379 (35%)

Number who had an HbA1c and/or FPG 3,593 (66%)

At high risk of diabetes and eligible for notes review 738 (20%)

Patients at high risk of diabetes, but excluded as 1st blood test ≥ 1 year post NHS Health check 174 (5%)

Patients who had an HbA1c and/or FPG and found not to be at risk of diabetes 2681 (75%)

Patients who met the diabetes filter, but did not have an HbA1c/FPG 1,786 (33%)

Patients who met the diabetes filter 5,379 (35%)

Number of notes reviews undertaken (at least 20% or minimum of 2 sets of records per practice) 112

Patients at high risk of diabetes consented to notes review 426 (58%)
Of the 49 patients who had a repeat blood test, 10 did not have a like for like blood test and 13 had a test within 6 months.

Of the remaining 26 patients, 9 (34%) patients had improved blood results and were no longer in the pre-diabetes risk group.
Results \( (n=112) \)

Standard 3 - READ codes

13/112 (11%) patients had a READ code linked with high risk of diabetes.
1 patient subsequently diagnosed with Type 2 Diabetes.
<table>
<thead>
<tr>
<th><strong>Waist Circumference (WC)</strong></th>
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<tbody>
<tr>
<td>91 out of 112 (81%) recorded at health check</td>
<td>33 women (90%) WC ≥ 80cms</td>
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<tr>
<td>36 women (90%) WC ≥ 80cms</td>
<td>52 men (89%) WC ≥94 cms or ≥85 cms if South Asian/Chinese</td>
</tr>
<tr>
<td>4 patients had a reduction in WC, but remained in ‘high risk’ group</td>
<td></td>
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<tr>
<td>7 out of 91 (8%) recorded post health check</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td><strong>BMI</strong></td>
<td></td>
</tr>
<tr>
<td>110 out of 112 (98%) recorded at health check</td>
<td>BMI &gt; 25 = 102 (92%)</td>
</tr>
<tr>
<td>110 out of 112 (98%) recorded at health check</td>
<td>BMI &gt;30 = 72 (65%)</td>
</tr>
<tr>
<td>Weight management discussed</td>
<td>62 (56%) patients</td>
</tr>
<tr>
<td>Weight management referral (lite4life)</td>
<td>10 (14%) patients</td>
</tr>
<tr>
<td>Attended weight management</td>
<td>3 patients</td>
</tr>
<tr>
<td>59 out of 112 (53%) recorded post health check</td>
<td>34 (58%) patients had a reduction in BMI</td>
</tr>
<tr>
<td>2 patients reduced their BMI &lt;25</td>
<td></td>
</tr>
<tr>
<td><strong>GPPAQ</strong></td>
<td></td>
</tr>
<tr>
<td>102 out of 112 (91%) recorded at health check</td>
<td>60 patients (58%) Moderately Inactive or Inactive</td>
</tr>
<tr>
<td>Physical activity discussed</td>
<td>87 (77%) patients</td>
</tr>
<tr>
<td>Referred to physical activity programme</td>
<td>3 (3%) patients</td>
</tr>
<tr>
<td>Attended physical activity programme</td>
<td>1</td>
</tr>
<tr>
<td>17 out of 112 (16%) recorded post health check</td>
<td>6 (32%) patients had in improvement in GPPAQ</td>
</tr>
</tbody>
</table>
How we used the audit findings to improve patient outcomes
Improvement required

Identification
- Blood testing
- Understanding of blood test result
- Systematic READ coding: ‘non-diabetic hyperglycaemia’
- Computer searches

Lifestyle Intervention
- Documentation and coding
- Diabetes Prevention intervention
- Increase referrals to lifestyle services

Review
- 1 year review
- Risk factor profiles at 1 year: Weight, BMI, BP, HbA1c
- Pathway: education and implementation
Intervention to offer blood test assessment to ‘missing patients’

Number of patients who met the diabetes filter but did not have an HbA1c/FPG in the original search

1786 (33%)

Intervention:
These patients sent letter and pathology form requesting HbA1c

Number of NEW patients who met the diabetes filter and had an HbA1c and /or FPG

652 (39%)

Number of NEW patients who had an HbA1c and /or FPG found to be at high risk of diabetes

131 (20%)

Number of NEW patients who had an HbA1c and /or FPG found not to be at high risk of diabetes

521 (80%)

Number of NEW patients found to have Type 2 Diabetes

8 (6% of high risk patients)
<table>
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<th><strong>Service improvements implemented</strong></th>
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</table>
| 1. | **Education** to providers on whole pathway of identification and management of people at high risk of diabetes  
• Use of READ coding  
• Promoting behaviour change through motivational interviewing  
• Documentation of lifestyle interventions and referrals |
| 2. | **Computer system:**  
• Improvements to templates including prompts to action  
• Amended computer searches |
| 3. | **Commissioning** to improve performance  
• POCT testing for HbA1c by Alternative Providers  
• Service specification requirement to measure diabetes filter  
• Specific diabetes prevention interventions |
| 4. | **Joint working** to promote and facilitate best practice |
| 5. | **Measuring progress**  
• Completed comparison of audit 2011-13 and end of year data  
• More in-depth re-audit in planning stages due for implementation |
## Improvements in blood testing

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<tbody>
<tr>
<td>Number of people who met the diabetes filter</td>
<td>5,379</td>
<td>2,491</td>
<td>2,508</td>
</tr>
<tr>
<td>(Percentage of those who had received an NHS Health Check)</td>
<td>(35%)</td>
<td>(30.2%)</td>
<td>(31.8%)</td>
</tr>
<tr>
<td>Number of people met the diabetes filter <strong>with</strong> a blood test for HbA1c and/ or FPG</td>
<td>3,593</td>
<td>1,424</td>
<td>1,989</td>
</tr>
<tr>
<td>Percentage of people who met the diabetes filter <strong>with</strong> a blood test for HbA1c and/ or FPG</td>
<td>66%</td>
<td>57.2%</td>
<td><strong>79.3%</strong></td>
</tr>
</tbody>
</table>

*2 years* audit data shown in blue. Data collection August 2014.
**Current Diabetes Prevention Programmes**

**Weight Watchers Diabetes Prevention Programme:**

1 year intensive lifestyle support

- Patient Identified as ‘at risk’ of developing diabetes.
- Out of 166 referrals, 132 patients attended a welcome session (80%)

6 months outcome data 91/132 to date:

- **85% reduced risk**

  - 52 patients no longer at risk (57%)
  - 25 patients have reduced risk (28%)
  - 3 patients risk stayed the same (3%)
  - 11 patients have increased risk (12%)

**Walking Away from Diabetes Programme:**

3 hour intervention

- Patient Identified as ‘at risk’ of developing diabetes.
- 407 completed intervention 2015/16

12 month outcome data 106/407 to date:

- **74% reduced risk**

  - 45 patients no longer at risk (42%)
  - 34 patients have reduced risk (32%)
  - 22 patients risk stayed the same (21%)
  - 5 patients have increased risk (5%)

Bromley will be part of the South London bid delivering the National Diabetes Prevention Programme
Conclusion

• Audit has provided a very useful tool to demonstrate areas for improvement in NHS Health Checks

• Engagement of the GP Practices and other key stakeholders in the audit process

• Range of low cost service improvements have been implemented to address the gaps

• Improved patient outcomes have been demonstrated by providing high quality in the NHS Health Check programme
Thank you

- Heart UK
- PHE
- Everyone in Bromley who participated
- Team in Public Health
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