

# Four Years of NHS Health Checks in Barnsley - Outcomes and Inequalities

## Summary

After four years of NHS Health Checks, Barnsley has access to aggregated data on over 47,000 people. This data was analysed to consider:

### Diagnosis and Disease Prevalence

- Diagnosis of cardio-vascular disease (CVD) made following NHS Health Checks and the effects on disease prevalence
- How many people remain with undiagnosed cardio-vascular disease?

### Ongoing Management of CVD Risk Factors

- Care in the months and years after the Health Check. Are raised CVD risk factors followed up by GP practices?
- Variation in the distribution of untreated people between GP practices and the implications for inequalities

The analysis demonstrates that it is possible to identify 'at risk' patients who are not receiving (or who choose not to receive) follow up care or diagnosis.

The analysis also demonstrates which GP practices have more of these untreated patients.

### Conclusions

- The NHS Health Check can be effective in the early diagnosis of diabetes, kidney disease and hypertension when combined with effective GP follow up investigations. In Barnsley it has been very effective in identifying diabetes and kidney disease but only moderately effective for hypertension.
- Objective data can provide the basis for managing both patients and GP practices, to the likely benefit of health outcomes.

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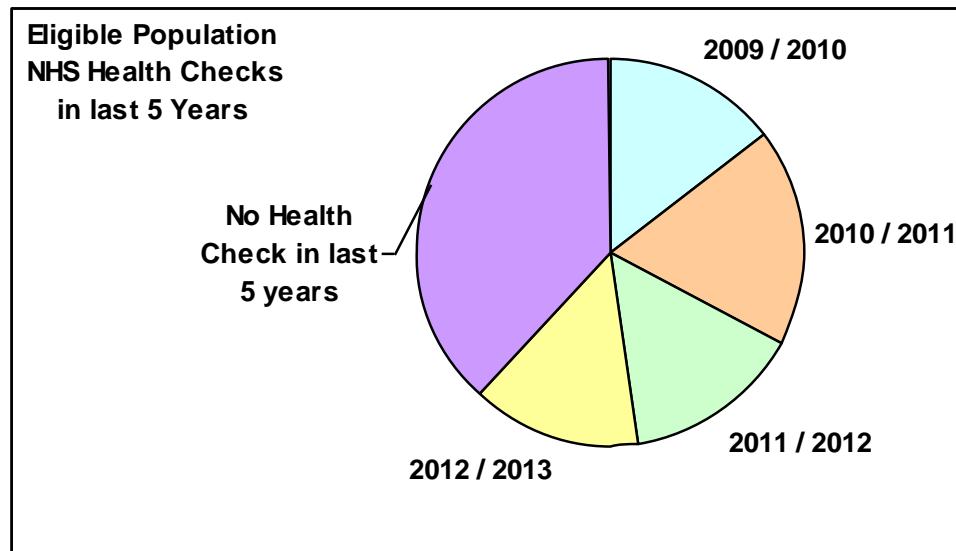
This case study looks at data gathered by the Barnsley NHS Health Checks programme between April 2009 and March 2013. During this time the programme was managed by the commissioning arm of Barnsley PCT. On 1<sup>st</sup> April 2013 responsibility for the programme transferred to Public Health Barnsley, now part of the Local Authority.

# Four Years of NHS Health Checks in Barnsley - Outcomes and Inequalities

## 1. Background

### Health Check Delivery

In Barnsley 63,150 people are eligible for an NHS Health Check and by 31 March 2013 62% of them had received one (38,953). Health Checks are delivered entirely by GP practices, with all practices participating.



### Data Extraction

NHS Health Checks are measured by a data extraction process written by the Barnsley Primis team. This uses Miquet queries and an Excel programme to produce comparable data from all types of GP electronic records. All Health Checks are objectively measured and validated against ten criteria. Patient identifiable data remains at the practice, aggregated data is reported to the commissioner.

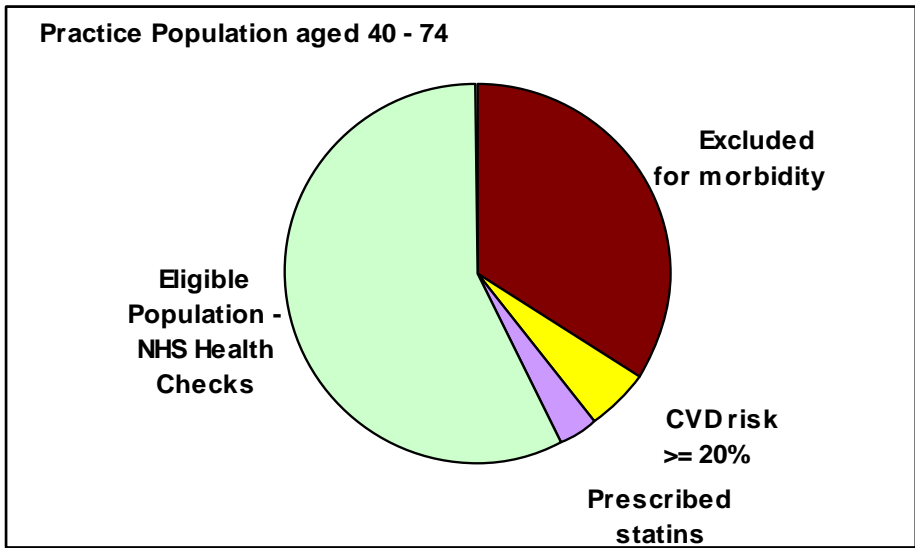
Each practice runs the monitoring programme every quarter. The programme continues to collect data on everyone who has had a Health Check code recorded on their medical record since Health Checks began in April 2009. By April 2013 this had grown to 47,751 people (including incomplete checks etc. (see appendix 3 for definitions)). There is a continuing record of the latest CVD outcomes for all these people, for example latest blood pressure, cholesterol or blood glucose. Diagnoses and prescriptions are also recorded. There is a large and growing database of NHS Health Check outcomes.

### Participation

All GP practices deliver NHS Health Checks but some only joined the programme in the last two years. Every practice has delivered NHS Health Checks to at least 33% of its eligible population.

### The Eligible Population

Barnsley is an area of high deprivation. Only 57% of people aged 40-74 are eligible for Health Checks due to a high level of exclusions:

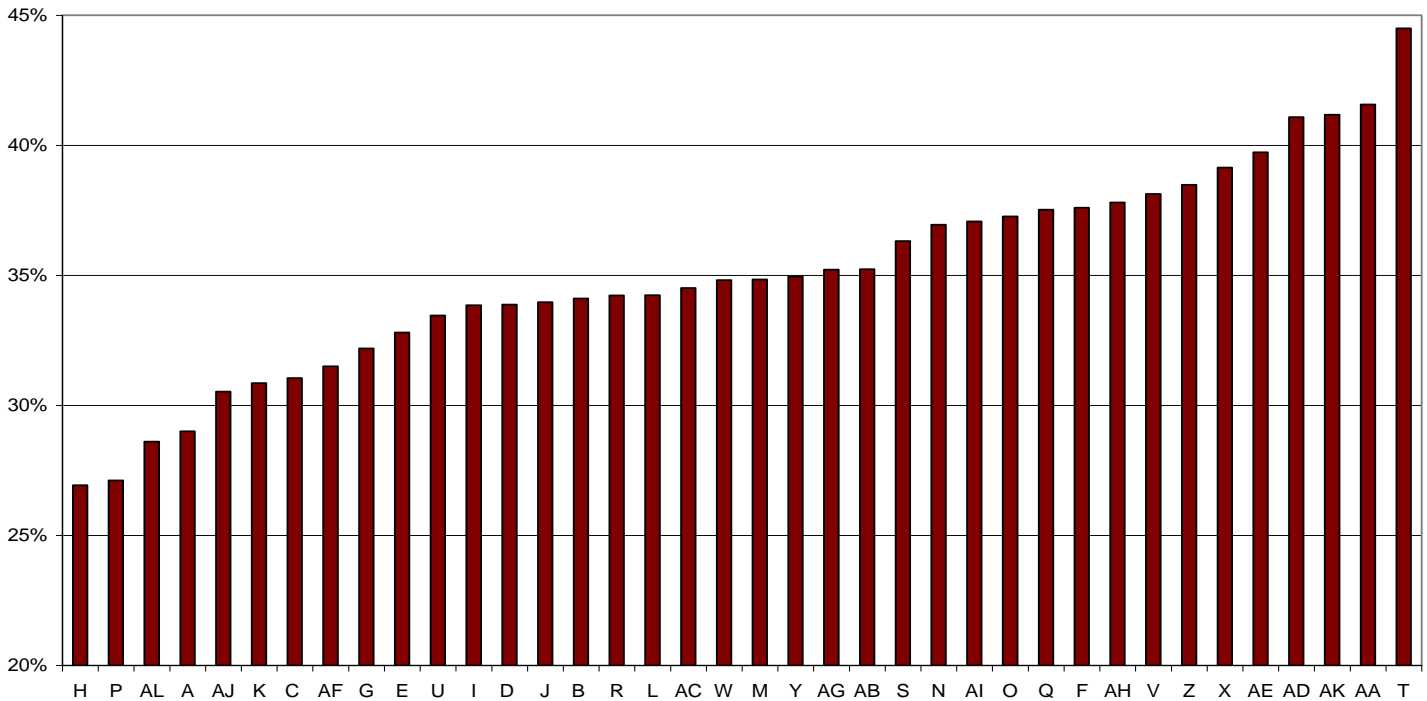


Morbidity exclusions are people diagnosed with:

|                     |                          |
|---------------------|--------------------------|
| CHD                 | Familial Hyperlipidaemia |
| Stroke & TIA        | Chronic Kidney Disease   |
| Heart Failure       | Hypertension             |
| Atrial Fibrillation | Diabetes                 |
| PVD                 | LVH                      |

The prevalence of these diseases varies greatly across the borough:

**% Population aged 40-74 excluded for Morbidity**



The chart shows CVD morbidity prevalence (as defined above) at each GP practice. Demographics, deprivation and smoking are some of the factors affecting this variation but there is also variation in clinical practice. The point at which diabetes or hypertension is diagnosed is a judgement call that can be made differently by individual clinicians.

Note. GP practices are identified by letters of the alphabet which remain identified to the same practice in all charts in this report.

## 2. Diagnoses following NHS Health Checks

Barnsley has had well established disease registers for some years. All cardiovascular disease prevalences are above the national average. A number of individuals have been diagnosed with CVD following an NHS Health Check, especially in 2009 -10 when those at highest CVD risk were targeted. Prevalences have risen slightly compared to national averages since the introduction of NHS Health Checks.

### Diagnoses made within 3 months of the Health Check - and later.

#### **Diagnoses within 3 months of the NHS Health Check, 2009 – 2013**

|                              | CVD risk<br>≥20% | HF       | IFG       | IGT       | Diabetes   | Hypertension | CKD        | AF        | Total Complete<br>Checks<br>(including GP<br>follow up) |
|------------------------------|------------------|----------|-----------|-----------|------------|--------------|------------|-----------|---|
| <b>Total within 3 months</b> | <b>4499</b>      | <b>4</b> | <b>68</b> | <b>92</b> | <b>334</b> | <b>715</b>   | <b>142</b> | <b>13</b> | <b>37393</b>  |

|   |     |    |    |    |     |     |     |    |
|---|-----|----|----|----|-----|-----|-----|----|
| <b>Later than 3 months<br/>after the Health Check</b> | n/a | 29 | 44 | 65 | 214 | 741 | 121 | 80 |
|---|-----|----|----|----|-----|-----|-----|----|

|   |             |           |            |            |            |             |            |           |
|---|-------------|-----------|------------|------------|------------|-------------|------------|-----------|
| <b>Total</b>                            | <b>4499</b> | <b>33</b> | <b>112</b> | <b>157</b> | <b>548</b> | <b>1456</b> | <b>263</b> | <b>93</b> |
| As a % of all complete<br>Health Checks | 12.0%       | 0.1%      | 0.3%       | 0.4%       | 1.5%       | 3.9%        | 0.7%       | 0.2%      |

DoH guidance suggests that only diagnoses within three months of the NHS Health Check should be counted, however It is likely that some diagnoses of diabetes and hypertension would take more than three months to be confirmed, especially where lifestyle modification is being encouraged.

#### Targeting high risk people first

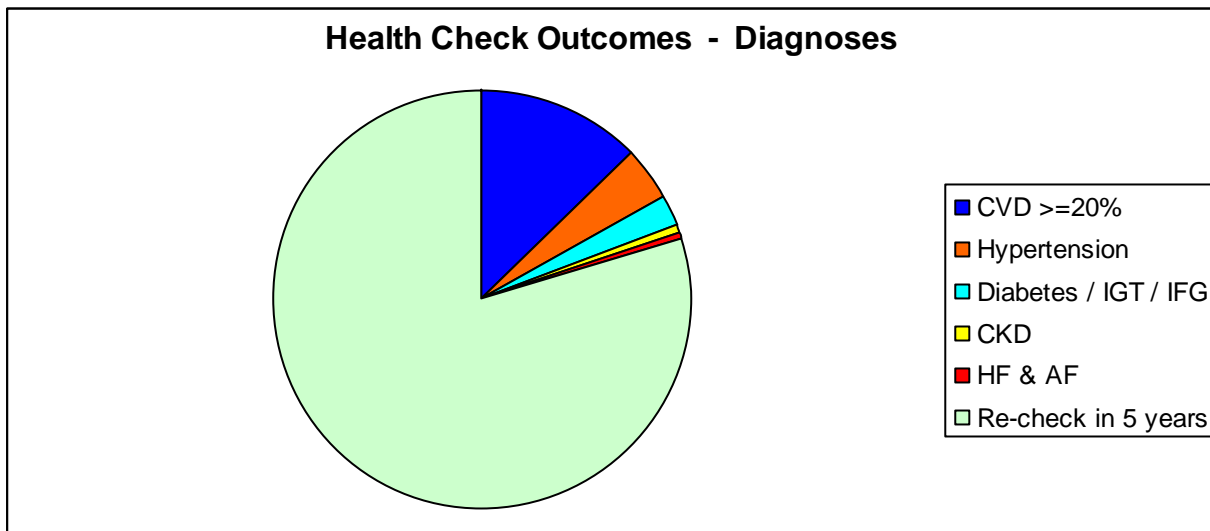
GP practices are provided with a list of people eligible for NHS Health Checks prioritised by estimated CVD risk. Higher risk people were targeted in the early years. By year 4 the majority of people receiving Health Checks were younger and with lower risk. As a result fewer people were diagnosed in 2012/13.

#### Diagnoses within 3 months of the NHS Health Check

|                             | CVD risk<br>≥20% | HF | IFG | IGT | Diabetes | Hypertension | CKD | AF | Total<br>Complete<br>Checks | Total<br>Diagnoses |              |
|-----------------------------|------------------|----|-----|-----|----------|--------------|-----|----|-----------------------------|--------------------|--------------|
| <b>2009-12<br/>(3 yrs)</b>  | 3967             | 3  | 60  | 82  | 281      | 607          | 133 | 12 | 28,878                      | 5,145              | <b>17.8%</b> |
| <b>2012-13<br/>(1 year)</b> | 532              | 1  | 8   | 10  | 53       | 108          | 9   | 1  | 8,515                       | 722                | <b>8.5%</b>  |

Nearly one in five of those receiving both an NHS Health Check and follow up investigation has been identified at high risk of CVD or diagnosed with CVD (including diagnoses later than three months):

|  |             |              |
|--|-------------|--------------|
| Total Checks with follow up investigations | 37393       |              |
| CVD risk $\geq 20\%$                       | 4499        | 12.0%        |
| Diagnosis within 3 months of Health Check  | 1368        | 3.7%         |
| Diagnosis later than 3 months              | 1294        | 3.5%         |
|  |             |              |
| <b>Total</b>                               | <b>7161</b> | <b>19.2%</b> |



## **2. Is the NHS Health Check process effective in discovering undiagnosed CVD?**

- How effective was the diagnostic pathway following an NHS Health Check?
- How many undetected people with raised risk factors remain?

### **Diabetes**

It was a condition of the Local Enhanced Service (LES) that any person with raised blood pressure or BMI should receive a blood glucose test. Raised results should be followed to a conclusion and Barnsley practices were not paid for a Health Check unless the monitoring programme showed that follow up diabetic testing was complete. This is in addition to the basic NHS Health Check. Since 1/4/2009, 96% of all reportable Health Checks have received this full or additional screening (37,393 people). In Barnsley the NHS Health Check has been extended to deliver mass population diabetic and CKD screening to 59% of the eligible population.

### **Few Missing Diagnoses**

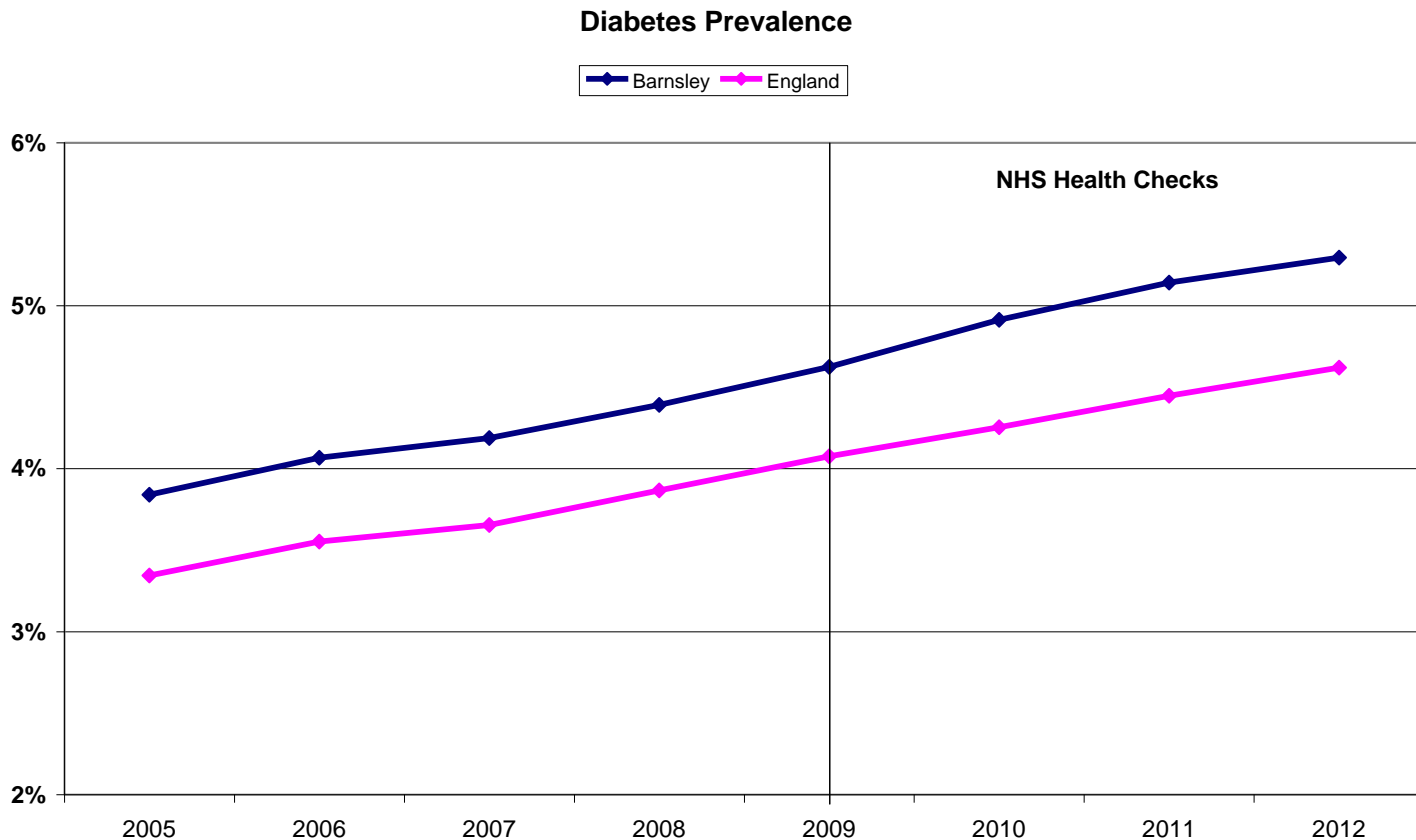
47,751 people have had a Health Check code recorded in the past 4 years, including some ineligible people and incomplete checks (see appendix 3 for definitions). Analysis of these medical records shows 124 people (not diagnosed as diabetic) have a latest blood glucose in the diabetic range. One raised result may not be sufficient for diagnosis. Some of these people are being monitored and all have been drawn to the attention of their GP practice.

### **Diagnosing diabetes - Conclusion**

Out of 37,393 people, less than 124 are potential candidates for diagnosis. Testing has been comprehensive and there are few unresolved cases.

## Diabetes Prevalence

There was an increase in the numbers diagnosed in the first years of the NHS Health Check as higher risk people were targeted for invitation but this has now tailed off as Health Checks are being offered to the remaining, mainly younger people.



## Chronic Kidney Disease

As with diabetes, it was a condition of the Local Enhanced Service that everyone with blood pressure  $\geq 140/90$  should have a follow up creatinine / eGFR test. This full screening took place at more than 96% of all NHS Health Checks.

### Few Missing Diagnoses

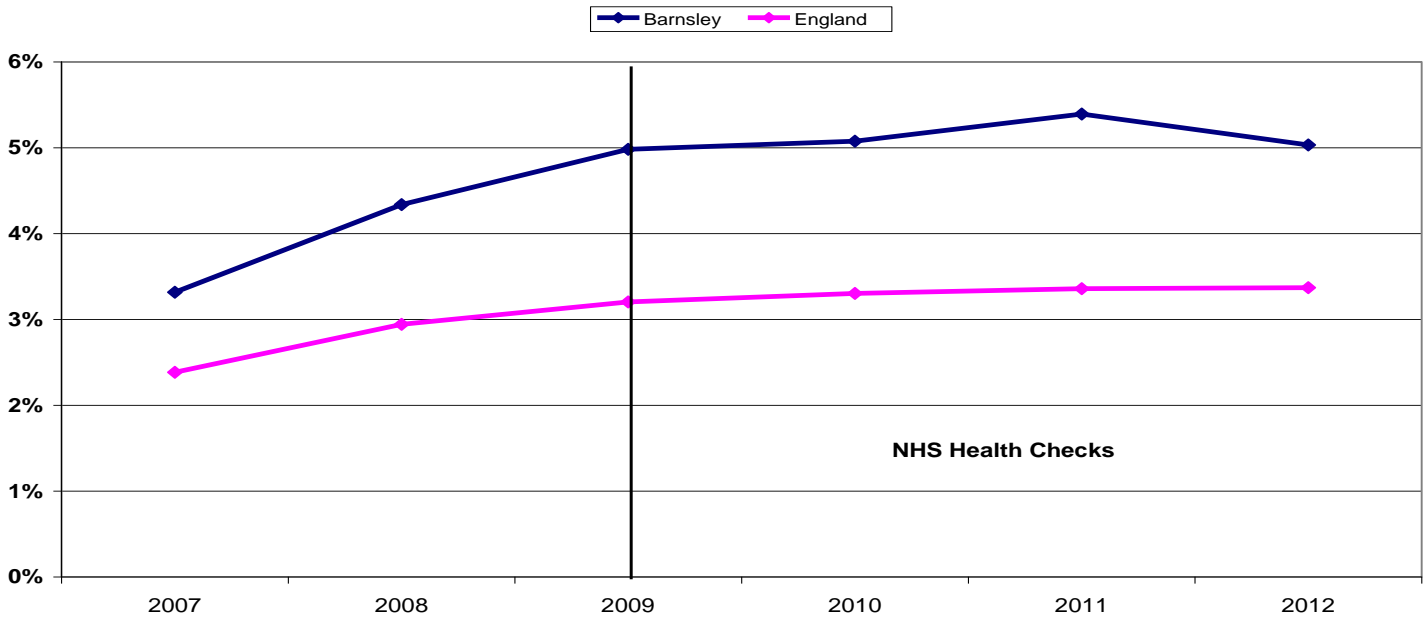
Out of the 47,751 medical records analysed, 17 people (not diagnosed CKD) were found with estimated glomerular filtration rate (eGFR)  $< 45$  (threshold for CKD stage 3b; one result alone is not diagnostic). These have all been identified to their GP practice.

### Diagnosing kidney disease - Conclusion

Nearly everyone with an NHS Health Check has been reviewed for Kidney disease, practically no-one has slipped through the net.

In four years 263 people were diagnosed with CKD after having a Health Check. This number is not big enough to have much impact on overall prevalence. (In 2012 there were 12,163 people on the CKD disease register.)

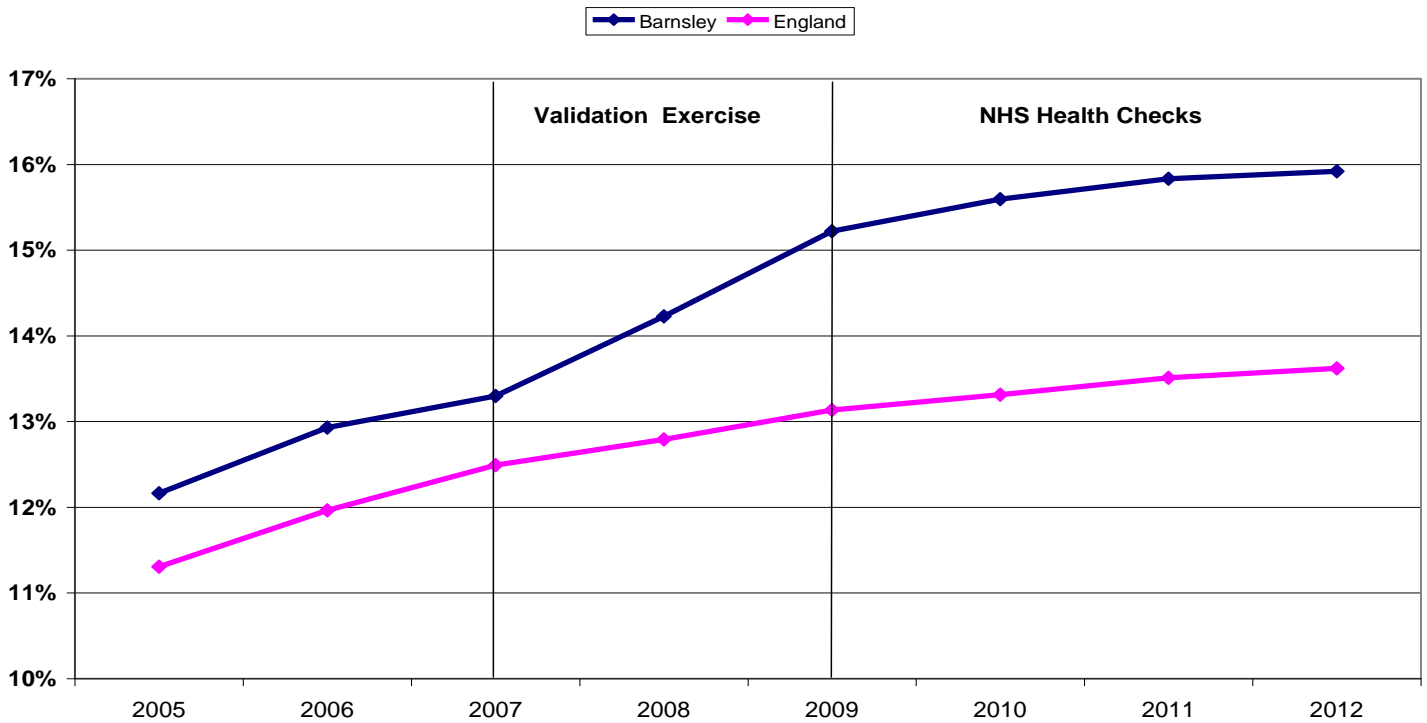
## Chronic Kidney Disease Prevalence



## Hypertension

Barnsley Hypertension prevalence increased significantly in 2007 & 2008 (before NHS Health Checks) when all GP practices participated in a disease register validation exercise. Since then prevalence has continued to increase but at a reduced rate.

### Hypertension Prevalence



### NHS Health Checks – identifying hypertension

Blood pressure is recorded as part of the NHS Health Check. Practices were expected to follow up people with raised BP as normal but there were no extra requirements as part of the LES.

### Missing Hypertension Diagnoses?

Analysis of data on everyone who has had a Health Check code recorded in the past four years has identified a number of people with raised blood pressure who were not diagnosed hypertensive.

At 31/3/2013 there were:

|                         |                                       |            |
|-------------------------|---------------------------------------|------------|
| Significantly raised BP | Average of latest 3 BP $\geq 160/100$ | 423 people |
| Moderately raised BP    | Average of latest 3 BP $\geq 155/90$  | 862 people |

The Moderate people are additional to the Significant, not inclusive of them

### Prescribing Anti-hypertensive drugs

The monitoring programme records how many people are prescribed anti hypertensive drugs following a complete NHS Health Check. It only looks for one prescription date after the Check, so it is possible that some patients do not continue with the prescription. The class of drugs is described below and it should be noted that some of them are also prescribed for reasons other than high blood pressure. Nonetheless it is interesting that twice as many people received an anti-hypertensive prescription after a health check than were diagnosed hypertensive, almost one in ten of everyone receiving a Health Check.

|                   |         | Hypertension diagnoses          |                     | anti-hypertensive prescriptions after Health Checks | Complete Health Checks |
|-------------------|---------|---------------------------------|---------------------|---|------------------------|
|                   |         | Within 3 months of Health Check | Later than 3 months |   |                        |
| 2012-13           | (1 yr)  | 108                             |                     | 253   | 8515                   |
| 2009-2012         | (3 yrs) | 607                             |                     | 3128  | 28878                  |
| 2009-13 (4 years) |         |                                 | 741                 |   |                        |
| <b>Total</b>      |         |                                 | <b>1456</b>         | <b>3381</b>   | <b>37393</b>           |

'Anti-hypertensive drugs' include any of the following categories:

- ACE/A2
- Beta blockers
- Alpha blockers
- Calcium inhibitors
- Thiazides

It is likely that only a minority of these prescriptions were for reasons other than raised blood pressure so one can speculate that there are a number of treated but not formally diagnosed hypertensive people.



### Diagnosing hypertension - Conclusion

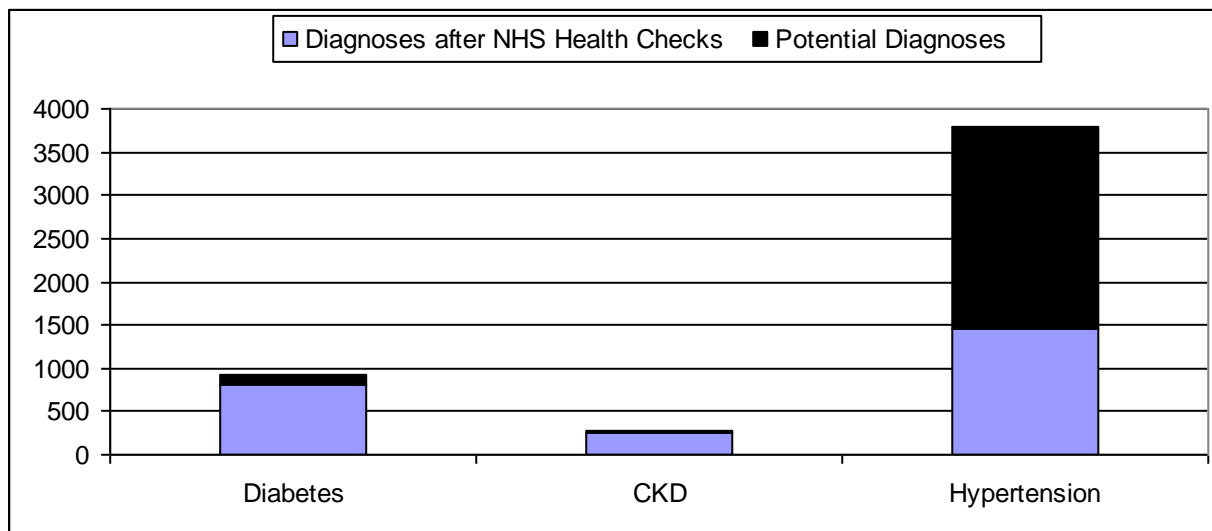
A significant number of people were diagnosed with hypertension but more remain to be found. Testing for hypertension was not as structured as for diabetes and CKD - no extra follow up checks were required to qualify for LES payment. The analysis of patient records shows that a number of potential hypertensives remain undiagnosed. A number of patients are reluctant to respond to practice invitations to have their blood pressure monitored. A further group appear to be prescribed anti-hypertensive drugs without a formal diagnosis.

To put the figures in perspective, if all these potential extra hypertensives were to be diagnosed (which may or may not be appropriate), Barnsley hypertension prevalence would increase from 15.9% to 16.8%.

### Discovering previously undiagnosed CVD - Conclusion

Testing for diabetes and CKD has been effective and comprehensive because GP follow up procedures have been robust. Identifying hypertension has been moderately successful but is not likely to improve until a more robust monitoring framework is agreed.

The chart shows (in blue) the numbers diagnosed following an NHS Health Check and (in black) an estimate of further potential candidates for diagnosis.



NHS Health Check activity provides GP practices with extra people who require follow up monitoring and testing but there is no national structure that measures whether this diagnostic process takes place. Follow up and diagnosis is likely to be inconsistent.

It is not suggested that all potential diagnoses should definitely be made but the chart probably gives a good indication of the approximate success of identifying previously undiagnosed people following the NHS Health Check.

### 3. CVD Risk $\geq 20\%$ and Statin Prescribing

4499 people who have had an NHS Health Check have a latest CVD risk score  $\geq 20\%$ . A similar number were prescribed statins although some statin prescriptions will have been for raised cholesterol alone.

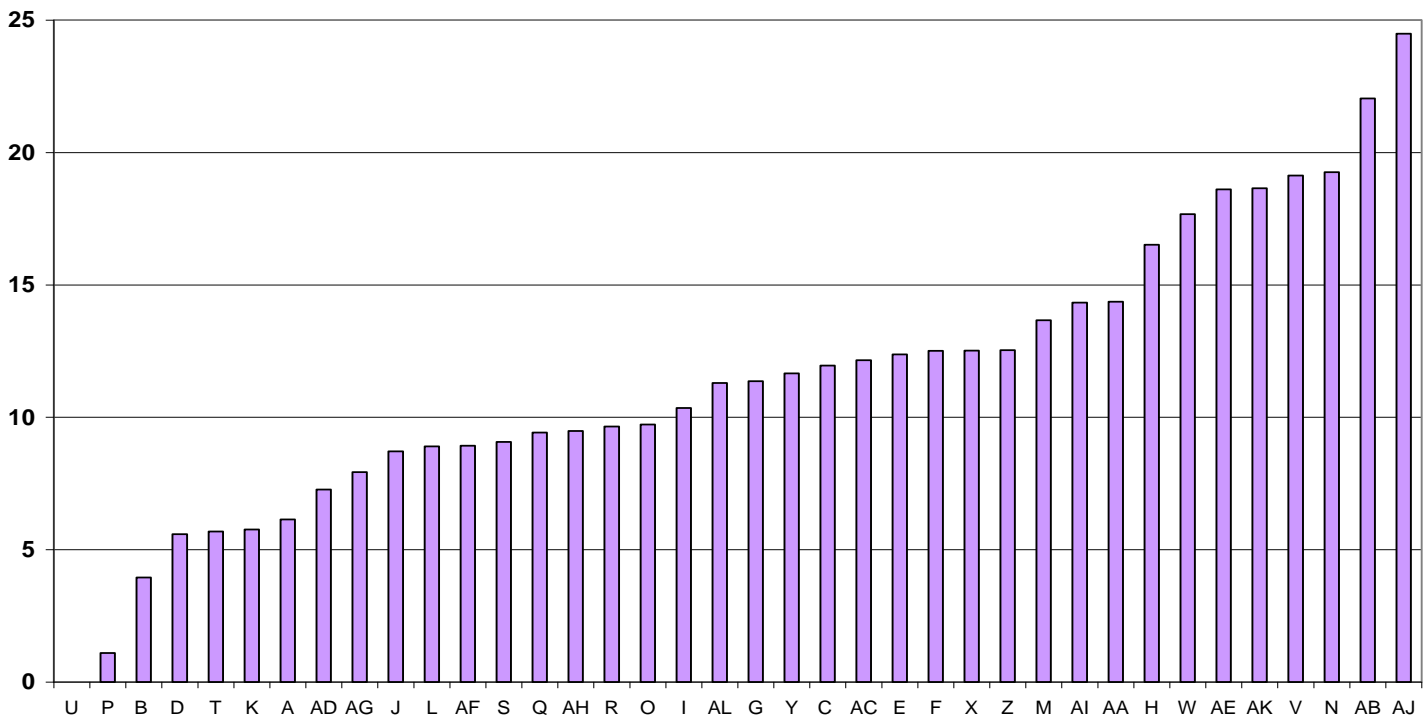
#### Statin Prescribing

Approximately one in every nine people receiving an NHS Health Check was then prescribed a statin (at least once). The rate of prescribing had dropped considerably by year 4 as increasingly lower risk people received Health Checks.

|              |         | statin prescriptions after Health Checks | Complete Health Checks | NHS Health Checks per prescription |
|--------------|---------|--|------------------------|------------------------------------|
| 2012-13      | (1 yr)  | 398                                      | 8515                   | 21.4                               |
| 2009-2012    | (3 yrs) | 3812                                     | 28878                  | 7.6                                |
| <b>Total</b> |         | <b>4210</b>                              | <b>37393</b>           |                                    |

In addition there are a number of people who have both high cholesterol and CVD risk  $\geq 20\%$  and who are not prescribed statins. From the population of 47,751 people with Health Check codes there are 517 such people. They are not distributed evenly between practices:

**Follow Up. People not on Statins (Raised Cholesterol + CVD risk  $\geq 20\%$ ) / per 1000 HC codes**



Raised cholesterol is defined as either total cholesterol  $\geq 7.5$  mmol/lit or a ratio of total cholesterol : hdl cholesterol  $\geq 6$ . Everyone included on the chart also has a CVD risk score  $\geq 20\%$ . (N.B. Some people cannot tolerate statins and others decline to take them.)

Approximately 1 in 10 people with a CVD risk score  $\geq 20\%$  also have raised cholesterol and have not been prescribed a statin. These are shown in the above chart.

#### 4. Follow Up Care of People with Raised CVD risk Factors

It is assumed that people discovered to have raised CVD risk factors during an NHS Health Check will receive follow up care from their GP practice. Practices are expected to do this work as part of their core activity although providing lifestyle advice, diagnostic monitoring and follow up care for hypertension and diabetes is a considerable task.

In 2012/13 the Barnsley LES was extended with a Quality element to cover follow up care given to people who had received an NHS Health Check since 1/4/2009. The monitoring programme gives practices a list of individuals with risk factors in the diagnostic range who seem good candidates for further investigation. The expectation was that monitoring these patients would lead either to diagnosis or improved outcomes. Take up during the year was mixed but some practices followed up many of these patients and reduced the numbers on their list by the end of the year – with a corresponding benefit in patient care.

The risk factors reviewed are:

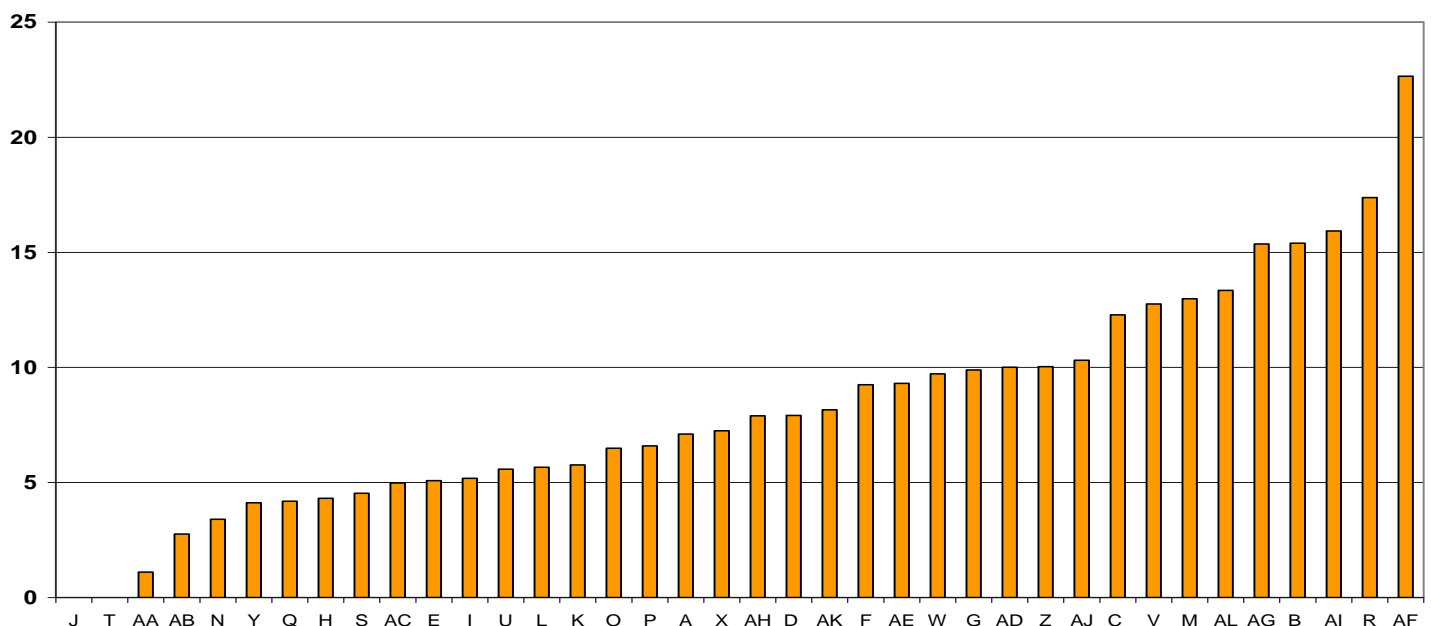
- raised blood pressure
- diabetic screening and raised blood glucose
- raised cholesterol
- risk of kidney disease

The following analysis demonstrates that people with outstanding raised risk factors are not evenly distributed amongst GP practices. For comparison purposes figures are shown per 1000 Health Check codes.

##### Raised Blood Pressure

This chart shows the number of people with significantly raised blood pressure in the months/years following their Health Check, per 1000 practice Health Checks. Most individuals on the chart have an average BP  $\geq 160/100$ . Follow up care for these people can include lifestyle change or diagnosis and treatment. Not all cases are easily resolved but the variation between practices is considerable.

Follow Up. People with Raised BP / per 1000 HC codes

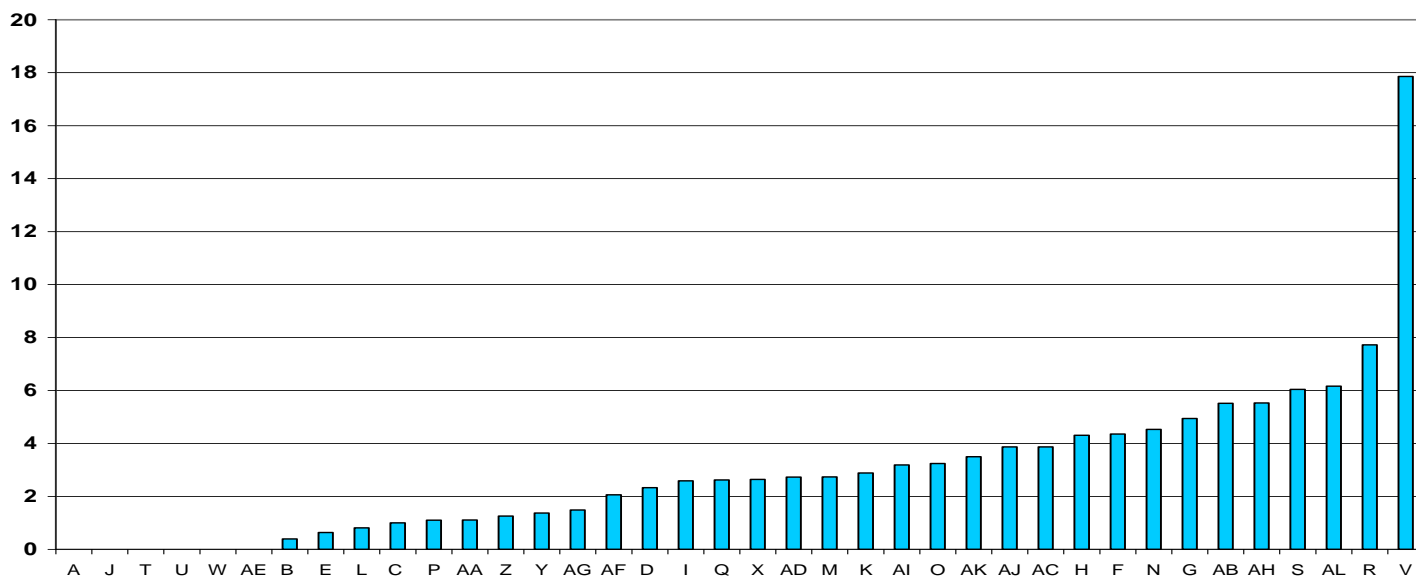


Note: There is variation in the amount of BP data on the electronic record. Some practices record all patient information electronically, others use manual records and are selective in what is recorded electronically. There are also data quality issues. Average home BP recordings can be mistakenly recorded as clinic measured BP, giving lower values.

## Raised Blood Sugar

The next chart considers patients with blood glucose in the diabetic diagnostic range who require further investigation. It is likely that some of these people are un-diagnosed diabetics, although allowance must be made for the extended time that may be required for diagnosis.

**Follow Up. People with Diagnostic Level Blood Sugar / per 1000 HC codes**



## Raised Cholesterol

Clinicians have different views about when it is appropriate to prescribe statins for raised cholesterol. This is reflected in the distribution of the 517 people with CVD risk > 20% and high cholesterol who are not on statins. This is shown in the chart on page 10, above.

## Risk of Kidney Disease

Only 17 people were discovered. The incidences are included in the combined chart below.

## Follow Up Care – All Factors

The monitoring programme filtered the medical records of 47,751 people with a Health Check code, aged 40-74. 2,966 of these were identified with raised risk factors, of which 1081 incidences were in the diagnostic range. These 1081 significant incidences are the people represented in the charts.

### **Incidence of raised risk factors**

|                    | Diabetes   | Cholesterol | CKD       | Blood Pressure | Total Incidences |
|--------------------|------------|-------------|-----------|----------------|------------------|
| <b>Significant</b> | <b>124</b> | <b>517</b>  | <b>17</b> | <b>423</b>     | <b>1081</b>      |
| Moderate           | 1080       | n/a         | 48        | 862            | 1990             |

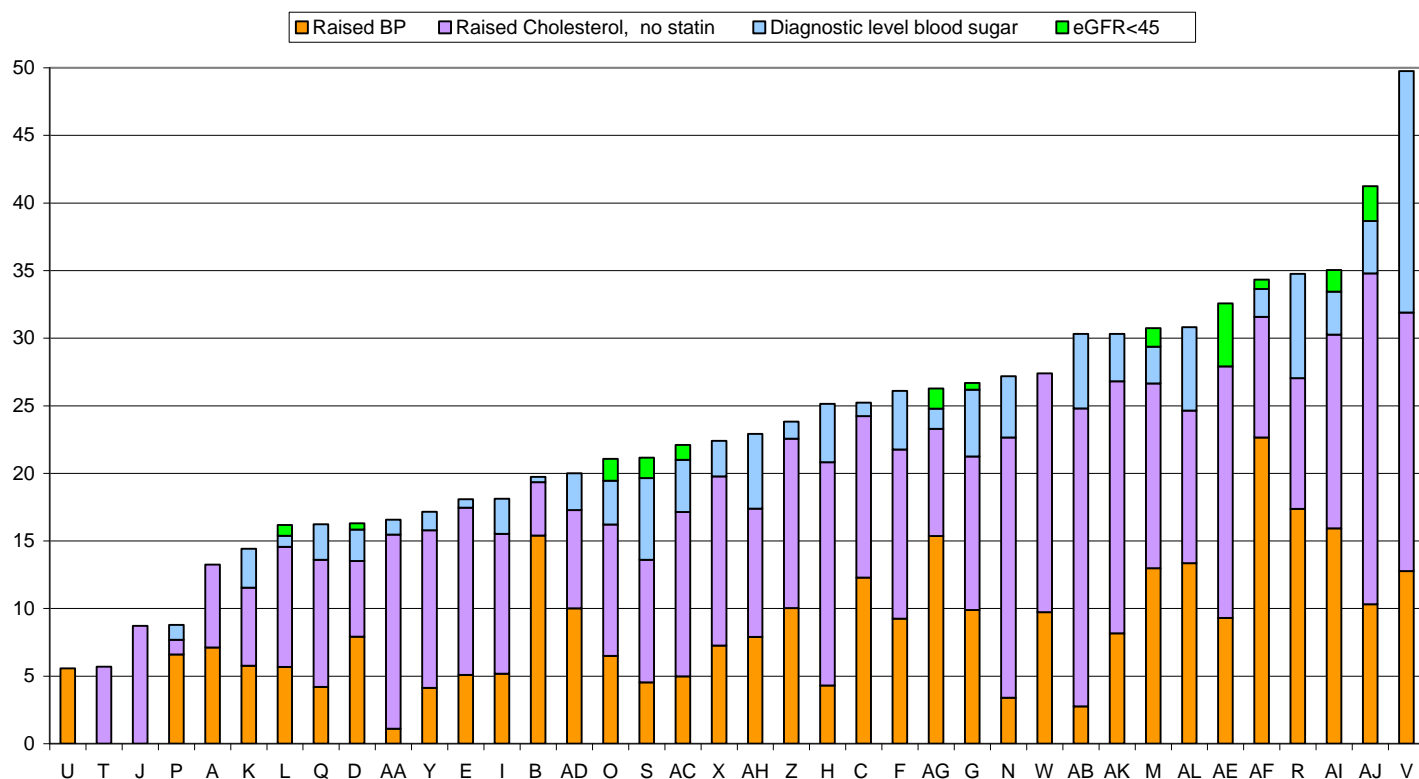
Some individuals had more than one raised factor (incidence).

Definition of the categories can be found in appendix 1a

All 2,966 individuals (significant + moderate in the table) are identified on a list available to each practice, with the risk factors highlighted. Appendix 1b is an example of this list.

The next chart shows the total significant incidences (per 1000 Health Checks) in all four risk areas, by GP practice:

### Follow Up. All Significant Factors per 1000 Health Check codes



These incidences are part of a moving picture and require local knowledge to interpret. One factor which emerged during the year was variation across the borough in the willingness of patients to respond to practice invitations to have their condition reviewed. Similarly 'paperless' practices where all patient information is entered directly to the electronic record have a more complete picture of patient care in all its variability when compared to practices where edited data is recorded. Practices which have carried out fewer Health Checks are likely to have concentrated on the people at highest risk so may show proportionally more people requiring ongoing care.

Despite these reservations it might not be unreasonable to suppose that patients of practices on the left side of the above chart may be getting more active follow up care than patients of those at the right.

#### Variation and Inequality

The charts show variation in morbidity and patients with risk factors between GP practice populations across the borough. It is not possible to say how much of the variation is due to the practice populations and how much down to the practices, but practices do vary. Measuring this variation is the first step towards learning from it and managing it to improve patient outcomes.

Data analysis identifies the individuals who have untreated CVD risk factors and the GP practices where these patients can be found. Life expectancy in Barnsley is below the national average and comparative data provides an opportunity to address this.

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The Monitoring programme reviewed the medical records of 47, 751 people aged 40-74 with a Health Check code. This included people with incomplete Health Checks and some who were ineligible. 2,966 of these were identified with raised risk factors, in the following categories:

**Incidence of raised risk factors**

|                    | Diabetes   | Cholesterol | CKD       | Blood Pressure | Total Incidences |
|--------------------|------------|-------------|-----------|----------------|------------------|
| <b>Significant</b> | <b>124</b> | <b>517</b>  | <b>17</b> | <b>423</b>     | <b>1081</b>      |
| Moderate           | 1080       | n/a         | 48        | 862            | 1990             |

Some individuals had more than one raised factor.

**Definitions**

|             | Diabetes                                      | Cholesterol                             | CKD                      | Blood Pressure                     |
|-------------|---|---|--------------------------|------------------------------------|
| Significant | Blood glucose in diagnostic range             | High cholesterol + CVD risk $\geq 20\%$ | eGFR $<45$               | Average of 3 latest $\geq 160/100$ |
| Moderate    | Raised blood glucose or glucose test required | n/a                                     | Creatinine test required | Average of 3 latest $\geq 155/90$  |

Significant range

Blood glucose in the diagnostic range is one of:

- fasting blood sugar  $\geq 7.0$
- 120 minute oral glucose tolerance test  $\geq 11.1$
- HbA1c  $\geq 48$  mmol/l

High cholesterol is either:

- Total cholesterol  $\geq 7.5$
- Total cholesterol : hdl cholesterol ratio  $\geq 6$

All people listed with high cholesterol also have a CVD risk  $\geq 20\%$

There are 1081 ‘significant’ incidences. This is the data that is used in the charts in the report.

Moderate range

Raised blood glucose is one of:

- Fasting blood sugar  $\geq 6.1$  and  $< 7$
- 120 minute oral glucose tolerance test  $\geq 7.8$  and  $< 11.1$
- HbA1c  $\geq 42$  and  $< 48$  mmol/l

‘Glucose test required’ is people who either have a BMI  $\geq 30$  or blood pressure  $\geq 150/90$  and require a blood glucose test.

‘Creatinine test required’ is people who have blood pressure  $\geq 150/90$  and require a creatinine test.

These BP thresholds are purposely higher than the NHS Health Check filter to increase specificity. The lower threshold (140/90) is used to validate the NHS Health Check, as per national guidance.

All 2,966 individuals are identified on a list available to each practice, with the risk factors highlighted. Appendix 1b is an example of this list.

NHS Health Checks is an ongoing programme. As more people receive NHS Health Checks the number of people being reviewed continues to increase. It is a continually updated snapshot of the CVD health of anyone in the eligible population who has ever had an NHS Health Check.

All patient identifiable data remains at the practice,

Appendix 1b

Follow Up Care

Each practice receives a list of people with raised risk factors

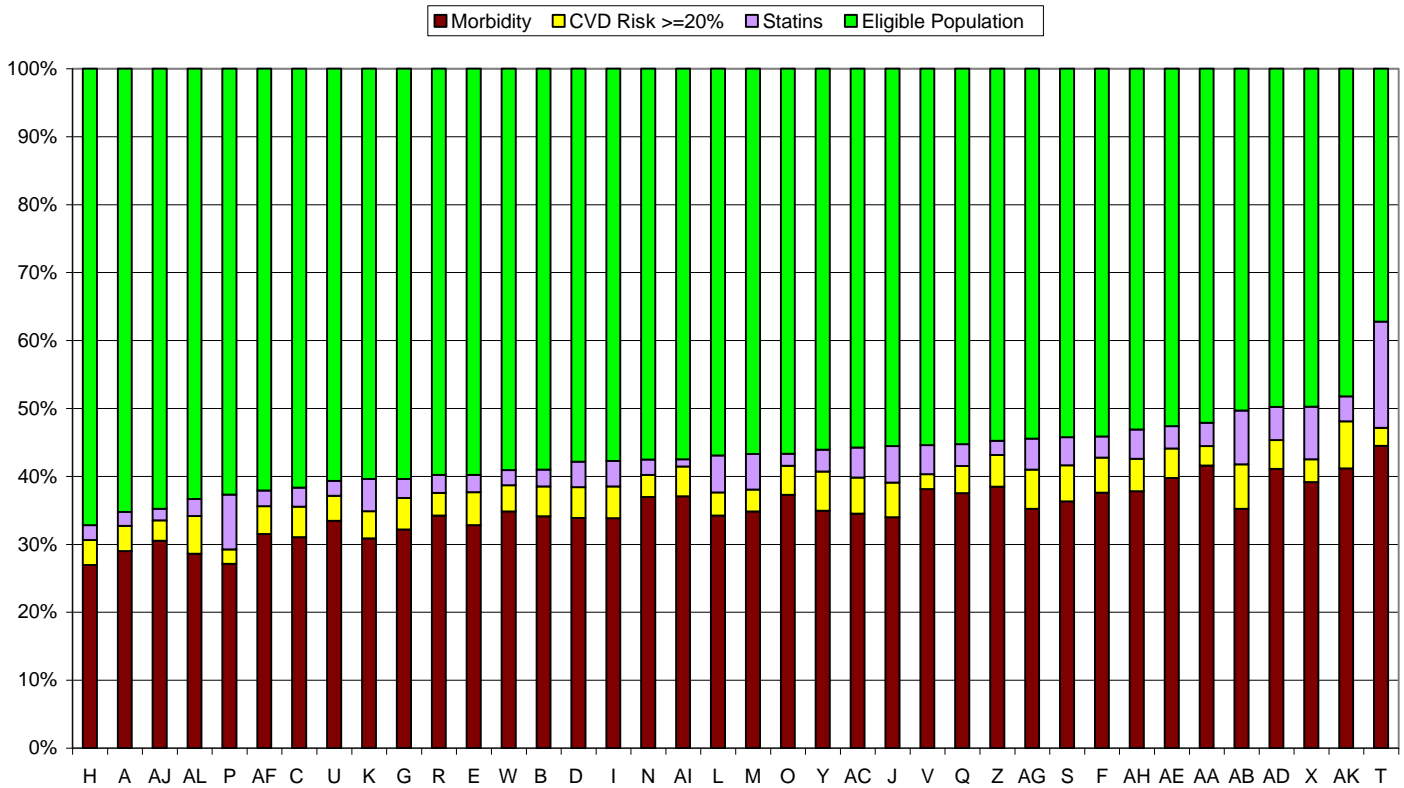
|                |         | Run date | 4.4.12 | Everyone with a Health Check, including Incomplete |                |                 |                 |             |             |                   |              |                      |             | Anti-hypertensive     |                     |                      |           | Diagnoses     |               |                         |                       | 0                              | 3                     | 1        | 0            |        |                 |                   |                  |
|----------------|---------|----------|--------|--|----------------|-----------------|-----------------|-------------|-------------|-------------------|--------------|----------------------|-------------|-----------------------|---------------------|----------------------|-----------|---------------|---------------|-------------------------|-----------------------|--------------------------------|-----------------------|----------|--------------|--------|-----------------|-------------------|------------------|
|                |         | Total    | 166    | Diabetes Screening                                 |                |                 |                 | Cholesterol |             | eGFR              |              | Av. Home / Amb. BP   |             |                       | Blood Pressure      |                      |           | medication    |               |                         |                       |                                |                       | 312      |              |        |                 |                   |                  |
| HCM row number | Surname | Forename | Sex    | Age  | Random glucose | Fasting glucose | 120 min glucose | HbA1c       | Requirement | Total cholesterol | TC:HDL ratio | eGFR date / required | latest eGFR | Average Home / Day BP | Av. Home / Day Syst | Av. Home / Day Diast | BP latest |               |               | EARLIEST since 01/10/08 | LATEST since 01/10/08 | Statin (latest since 01/04/09) | Latest CVD risk score | Diabetes | Hypertension | CKD    | Hyperlipidaemia | Health Check date | Follow Up Factor |
|                |         |          |        |  |                |                 |                 |             |             |                   |              |                      |             |                       |                     |                      | BP latest | BP 2nd latest | BP 3rd latest |                         |                       |                                |                       |          |              |        |                 |                   |                  |
| 3059           | Surname | Forename | M      | 67   | 5.4            |                 |                 |             | 6.9         | 7                 |              | 63                   |             |                       |                     |                      | 31.8.11   | 167/86        | 17.8.11       | 177/95                  | 25.7.11               | 144/92                         |                       | 27       |              |        |                 | 25.7.11           | 5.5              |
| 993            | Surname | Forename | M      | 57   | 8.6            | 7.4             |                 |             | 6.2         | 5                 |              |                      |             |                       |                     |                      | 21.3.12   | 116/64        | 29.12.11      | 150/90                  | 6.12.11               | 140/80                         |                       | 21.0     |              | 7.8.08 |                 | 26.6.09           | 4.3              |
| 1993           | Surname | Forename | F      | 55   |                | 5.7             |                 |             | 8.2         | 5.1               |              | 76                   |             |                       |                     |                      | 15.1.10   | 155/100       | 5.1.10        | 163/104                 | 23.12.09              | 164/100                        |                       | 17       |              |        |                 | 23.12.09          | 4                |
| 2803           | Surname | Forename | M      | 59   |                | 4.8             |                 |             | 6.0         | 7.1               |              | 85                   |             |                       |                     |                      | 16.2.11   | 142/100       | 8.2.11        | 153/96                  | 27.8.09               | 148/94                         |                       | 22       |              |        |                 | 8.2.11            | 4                |
| 2417           | Surname | Forename | M      | 57   |                | 5.3             |                 |             | 6.2         | 4.6               |              |                      | 18.6.09     | 126                   | 81                  |                      | 7.3.11    | 164/100       | 21.2.11       | 158/94                  | 21.2.11               | 172/95                         |                       | 11       |              |        |                 | 10.1.11           | 4                |
| 1770           | Surname | Forename | F      | 58   | 4.8            | 5.9             |                 |             | 6.9         | 4.2               |              | 64                   | 1.10.09     | 124                   | 86                  |                      | 15.3.11   | 178/100       | 27.1.11       | 154/99                  | 11.5.10               | 151/98                         |                       | 7        |              |        |                 | 11.5.10           | 4                |
| 1867           | Surname | Forename | F      | 60   | 5.3            | 4.5             |                 |             | 5.3         | 4.3               |              |                      |             |                       |                     |                      | 27.6.11   | 163/86        | 24.2.09       | 163/93                  | 10.2.09               | 182/93                         |                       | 22       |              |        |                 | 27.6.11           | 4                |
| 1373           | Surname | Forename | F      | 73   |                | 5.3             |                 |             | 4.3         | 3.5               |              | 74                   | 28.3.12     | 139                   | 80                  |                      | 13.2.12   | 164/88        | 30.1.12       | 167/85                  | 13.12.11              | 148/80                         | 12.10.11              | 2.4.12   |              | 18     |                 | 11.1.10           | 4                |
| 570            | Surname | Forename | F      | 51   | 6.2            | 5.7             |                 |             | 5.3         | 3.1               |              | 86                   |             |                       |                     |                      | 27.3.12   | 161/88        | 26.3.12       | 183/110                 | 22.3.12               | 172/94                         | 10.10.11              | 2.4.12   |              | 2      |                 | 13.10.09          | 4                |
| 402            | Surname | Forename | M      | 58   | 4.9            | 4.6             |                 | 5.4         | 5.2         | 4.4               | 19.3.12      | 29                   |             |                       |                     |                      | 20.1.12   | 149/76        | 15.11.11      | 167/86                  | 2.11.11               | 174/76                         | 15.12.11              | 26.3.12  | 26.3.12      | 2      | 2.11.11         | 9.4.10            | 3.8              |
| 841            | Surname | Forename | F      | 62   |                | 5.9             | 7.8             |             | 5.0         | 3.1               |              | 69                   | 8.11.11     | 120                   | 56                  |                      | 21.4.11   | 183/85        | 8.4.11        | 184/94                  | 17.12.10              | 162/80                         |                       | 13       |              |        |                 | 30.3.10           | 3.5              |
| 1539           | Surname | Forename | M      | 65   | 5.9            | 5               |                 |             | 6.9         | 6.5               |              | 65                   | 20.1.11     | 155                   | 93                  |                      | 8.6.11    | 138/80        | 10.5.11       | 164/97                  | 28.1.11               | 165/98                         | 21.10.11              | 19.3.12  |              | 22     |                 | 3.6.10            | 3.5              |
| 123            | Surname | Forename | F      | 57   | 6.2            | 4.5             |                 |             | 4.8         | 2.8               |              | 67                   |             |                       |                     |                      | 27.9.11   | 176/96        | 21.7.11       | 165/95                  | 10.1.11               | 154/85                         |                       | 3        |              |        |                 | 10.1.11           | 3.5              |
| 1590           | Surname | Forename | M      | 46   |                | 5.6             |                 |             | 5.9         | 6.3               |              | 72                   | 11.1.12     | 122                   | 86                  |                      | 22.11.11  | 160/102       | 3.11.11       | 151/106                 |                       |                                |                       |          | 7            |        |                 | 3.11.11           | 3.5              |
| 2383           | Surname | Forename | M      | 50   |                | 5.2             |                 |             | 9.4         | 5.8               |              |                      |             |                       |                     |                      | 1.12.11   | 176/116       | 13.10.11      | 169/100                 |                       |                                |                       |          | 8            |        |                 | 13.10.11          | 3.5              |
| 539            | Surname | Forename | F      | 63   | 5.6            | 5.5             |                 |             | 6.3         | 4.1               |              | 69                   | 15.1.12     | 121                   | 75                  |                      | 6.1.12    | 193/83        | 30.12.11      | 190/101                 | 4.10.10               | 132/82                         |                       |          |              | 8      |                 | 4.10.10           | 3.5              |
| 1165           | Surname | Forename | F      | 59   |                | 5               |                 |             | 5.9         | 3.6               |              | 63                   | 3.1.12      | 147                   | 85                  |                      | 24.1.12   | 170/88        | 10.1.12       | 176/98                  | 18.11.11              | 160/85                         |                       |          |              | 8      |                 | 15.11.11          | 3.5              |
| 2710           | Surname | Forename | M      | 65   |                | 5.5             |                 |             | 5.7         | 4.6               |              | 87                   | 28.7.10     | 137                   | 84                  |                      | 28.7.10   | 137/84        | 2.6.10        | 171/92                  | 25.1.10               | 171/90                         |                       |          |              | 18     |                 | 2.6.10            | 3                |
| 2142           | Surname | Forename | M      | 44   |                | 4.5             |                 |             | 6.4         | 7.3               |              | 75                   |             |                       |                     |                      | 6.4.11    | 136/98        | 14.12.10      | 140/93                  | 25.11.10              | 162/108                        |                       |          |              | 4      |                 | 25.11.10          | 3                |
| 1080           | Surname | Forename | M      | 52   |                | 5.2             | 6.8             |             | 4.9         | 5                 |              | 68                   |             |                       |                     |                      | 2.6.11    | 152/97        | 7.8.07        | 166/106                 |                       |                                |                       |          | 14           |        | 2.6.11          | 3                 |                  |
| 1991           | Surname | Forename | M      | 60   | 3.9            |                 |                 |             | 7.3         | 7.7               |              | 64                   |             |                       |                     |                      | 14.11.11  | 154/96        | 8.11.11       | 142/86                  | 7.11.11               | 168/90                         |                       |          |              | 26     |                 | 14.11.11          | 3                |
| 480            | Surname | Forename | M      | 51   |                | 5.2             |                 |             | 7.9         | 7.2               |              | 72                   |             |                       |                     |                      | 28.12.11  | 130/99        | 13.12.11      | 161/102                 | 2.3.10                | 172/101                        |                       |          |              | 6      |                 | 28.12.11          | 3                |
| 676            | Surname | Forename | F      | 46   | 5.8            | 5               |                 |             | 4.5         | 2.6               |              |                      | 23.1.12     | 143                   | 88                  |                      | 20.1.12   | 144/89        | 19.1.12       | 200/110                 | 17.1.12               | 172/106                        |                       |          |              | 2      |                 | 3.10.11           | 3                |
| 894            | Surname | Forename | F      | 52   | 8.1            | 5.1             |                 |             | 4.3         | 2.6               | Test         |                      |             |                       |                     |                      | 12.1.10   | 168/74        |               |                         |                       |                                |                       |          | 2            |        | 12.1.10         | 2.5               |                  |
| 2779           | Surname | Forename | M      | 45   |                |                 |                 | Test        | 6.5         | 5.2               |              | 78                   |             |                       |                     |                      | 25.1.10   | 160/94        | 6.1.10        | 140/100                 | 27.6.07               | 140/88                         |                       |          |              | 7      |                 | 25.1.10           | 2.5              |
| 241            | Surname | Forename | F      | 74   |                | 5.2             |                 |             | 6.6         | 4.3               |              | 75                   |             |                       |                     |                      | 20.9.10   | 163/92        | 30.1.08       | 155/90                  |                       |                                |                       |          |              | 21     |                 | 20.9.10           | 2.5              |
| 1294           | Surname | Forename | F      | 69   |                | 4.6             |                 |             | 7.4         | 5.2               |              | 83                   |             |                       |                     |                      | 25.10.10  | 160/82        |               |                         |                       |                                |                       |          |              | 24     |                 | 25.10.10          | 2.5              |
| 2023           | Surname | Forename | F      | 49   | 4.4            |                 |                 |             |             |                   |              | 73                   |             |                       |                     |                      | 18.4.11   | 130/100       | 1.11.10       | 134/68                  | 29.10.09              | 124/81                         |                       |          |              |        |                 | 29.12.09          | 2.5              |
| 2063           | Surname | Forename | M      | 72   | 6.3            | 6.9             | 8               |             | 6.5         | 7                 |              | 57                   |             |                       |                     |                      | 5.9.11    | 121/67        | 31.12.10      | 120/70                  | 8.9.08                | 110/80                         |                       |          |              | 33     |                 | 31.12.10          | 2.5              |
| 827            | Surname | Forename | M      | 62   |                | 5.3             |                 |             | 4.9         | 6.1               |              | 58                   |             |                       |                     |                      | 7.10.11   | 142/81        | 7.10.11       | 149/86                  | 9.12.10               | 162/95                         | 7.10.11               | 12.3.12  |              | 44     | 23.11.09        | 23.11.09          | 2.5              |
| 750            | Surname | Forename | F      | 65   | 7.8            | 5.2             |                 |             | 5.8         | 3.4               |              | 77                   |             |                       |                     |                      | 25.9.08   | 140/100       | 10.6.08       | 160/100                 | 13.5.08               | 130/85                         |                       |          |              | 8      |                 | 28.1.10           | 2                |
| 1141           | Surname | Forename | M      | 50   |                | 4.6             |                 |             | 4.0         | 5.7               |              |                      |             |                       |                     |                      | 3.12.09   | 150/100       | 6.5.09        | 140/88                  | 2.3.09                | 167/109                        |                       |          |              | 9      |                 | 6.5.09            | 2                |
| 1384           | Surname | Forename | M      | 54   |                |                 |                 | Test        |             |                   | Test         |                      |             |                       |                     |                      | 4.12.09   | 154/92        |               |                         |                       |                                |                       |          |              |        |                 | 4.12.09           | 2                |
| 1659           | Surname | Forename | M      | 66   |                | 5.2             |                 |             | 6.3         | 4.3               |              | 74                   |             |                       |                     |                      | 19.4.10   | 168/106       |               |                         |                       |                                |                       |          |              | 17     |                 | 19.4.10           | 2                |
| 2136           | Surname | Forename | F      | 59   |                | 4.4             |                 |             | 4.0         | 1.9               |              | 70                   | 26.8.10     | 130                   | 84                  |                      | 2.6.10    | 151/100       |               |                         |                       |                                |                       |          |              | 6      |                 | 2.6.10            | 2                |
| 1176           | Surname | Forename | M      | 57   |                | 4.9             |                 |             | 5.8         | 3.4               |              | 69                   |             |                       |                     |                      | 21.6.10   | 185/98        | 16.11.07      | 132/82                  |                       |                                |                       |          |              | 15     |                 | 21.6.10           | 2                |

## Appendix 2

### Population aged 40 – 74, Eligible for NHS Health Checks and Exclusions

The eligible population varies from 37% to 67% of the practice population aged 40-74, according to the size of the exclusion categories.

Population aged 40 - 74. Eligible for Health Checks & Exclusions





## Appendix 3

### Definitions

The Barnsley monitoring programme validates each NHS Health Check. *'Reportable Health Checks'* are counted for national quarterly reporting. Additional work was required to qualify for payment under the Barnsley Local Enhanced Service. Checks that include the extra items are termed *'Complete Health Checks including GP follow up screening'*.

A **reportable NHS Health Check** is where the following 7 criteria have been recorded on the medical record at or around the Health Check date (and where the person meets the eligibility criteria):

- Health Check code
- CVD risk score
- Blood pressure
- BMI
- Total & Hdl cholesterol
- Smoking status
- Exercise status

An **Incomplete Health Check** is where one or more of these 7 basic criteria is missing.

A **complete Health Check including GP follow up screening** must also record:

- Alcohol consumption
- Creatinine test if BP  $\geq 140/90$
- Blood glucose test if BP  $\geq 140/90$  or BMI  $\geq 30$  (27.5) if Asian)

(N.B. Health Check criteria from 1/4/2013 include Alcohol Audit and Dementia Awareness)

Different patient groupings referred to in the report are defined here.

|   |        |
|---|--------|
| People with a Health Check code recorded 1/4/2009 - 31/3/2013<br>(anyone aged 40-74 including people not in the eligible population or with an incomplete Health Check) | 47,751 |
| Of whom, outside the eligible population  | 5,729  |
| Incomplete checks   | 2,870  |
| Net eligible people with reportable NHS Health Check  | 38,953 |
| Of whom, also including follow up screening as required<br>(= complete Health Check with GP follow up)  | 37,393 |

#### Note

People outside the eligible population have either:

- previous CVD risk  $\geq 20\%$
- been previously diagnosed with CVD
- been prescribed a statin within 6 months before the Health Check

Hypertension and statin prescription were not exclusion factors in year 1 in Barnsley so many of the ineligible people with a Health Check code are hypertensives. These people are removed from the total of reportable Health Checks (but included in the scope of follow up screening).