2015

Health Equity Audit NHS Health Check Programme in Derbyshire County

The Health Equity Audit consists of 4 Reports:

Report 1 - Health Equity Profile

Report 2 - Healthcare Professional Rapid Survey Results

Report 3 - Service User Survey Results

Report 4 – Geodemographic Segmentation Profile

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Report 1 - Health Equity Profile of the NHS Health Check Programme in Derbyshire County

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Executive Summary - Health Equity Profile of NHS Health Check Programme in Derbyshire County

The structure and delivery of the programme within Derbyshire has been a discrete determining factor in the level of access between population groups:-

- Those with the highest CVD risk were prioritised for invitation using a targeted approach
- The phased roll out means practices are at different stages of inviting their targeted cohorts affecting the percentage offered between specific groups and overall

Therefore, access to the programme has not been *equal* across the entire population, but this does not necessarily mean that access has been *inequitable* if it reflects the level of need.

Based on the national and local population needs analysis it was proposed that the following groups should be prioritised for access and uptake:-

- Males;
- Older age groups, particularly men;
- Minority ethnic groups, particularly South Asian groups;
- Those living in deprived areas likely to have multiple risk factors and significantly poorer outcomes from CVD, such as Bolsover and Chesterfield;
- Areas with a higher eligible population of older males with potentially undiagnosed hypertension; older women; women in deprived groups; minority ethnic groups with higher risk of elevated cholesterol or low HDL
- Populations with higher prevalence of lifestyle risk factors such as smoking, obesity, and inactivity - particularly those from deprived groups and younger age groups;
- Patients from less deprived areas with potentially unknown risk of hazardous drinking.

The literature review identified lower uptake in men, younger age groups, socio-economically deprived populations, those with greater clinical need, higher risk status, more risk behaviours, and infrequent practice attenders. Many of the groups identified for prioritisation to achieve an equitable programme fall within these categories, further increasing the need to ensure these populations are offered and attend a health check.

A third of the eligible population in Derbyshire is in the most deprived quintiles, a higher proportion of which are in the younger age groups, primarily located in the north of the county and served by Hardwick CCG and Erewash CCG. North Derbyshire CCG has a significantly older eligible population and areas of high deprivation. Southern Derbyshire CCG has a significantly younger population, is relatively less deprived and has the highest percentage of ethnic minority groups.

Equity of Access and Uptake

The targeted approach to offer of invitation adopted in Derbyshire has resulted in overall equity of access for the identified priority groups. Compared to the average a significantly higher

percentage of men, the older age groups and the most deprived quintiles have received an offer to attend a health check. This means that a higher proportion of those with greater clinical need and more risk behaviours are also likely to have been offered an invitation: as demonstrated in those recorded as obese and current smokers.

However, the following groups were identified as potentially having inequitable access:-

Ethnic Groups:-

- It was not possible to determine whether minority ethnic groups with higher CVD risk had equitable access due to the data quality. Although the overall population is small it is important that access for these groups is not affected by missing or incorrect data.

Geographical Groups:-

- Due to the phased roll out of the programme, it was known that there would be inequality of access geographically, which could result in inequity for populations with higher need. However, this should improve as areas that began the programme at a later date invite more of their population; but it is important that the targeted approach is maintained to achieve equity.

People with Learning Disabilities:-

- Data are limited but suggest that a significantly lower percentage of those on the learning disability register have been offered a health check.

Unfortunately, the overall equity of access to the programme does not appear to have resulted in subsequent equity of uptake. Although significantly higher percentages of priority groups have been offered a health check, this is not reflected in the percentage that have taken up the offer and subsequently attended.

In line with the literature, significantly lower uptake was observed in:-

- Males;
- Younger age groups, particularly males;
- Most deprived populations, particularly males;
- Certain risk behaviours such as smoking and inactivity;
- Geographical areas and CCGs with higher proportions of these populations;
- Those on the Learning Disability and Severe Mental Illness QOF registers.

Equity of Outcomes

There are inequalities in the outcomes of a health check between different populations and areas, but the extent to which data recording affects this is not known. The already identified inequity of uptake in priority groups in itself impacts on equity of outcomes due to non-attendance, but apparent differences in the health check process may increase this further.

Whilst some variation would be expected as a health check should be tailored to each individual, areas requiring further investigation and/or improvement include:-

Obesity:-

- Low numbers of obese populations offered and accepting referral to weight service;
- A lower percentage of overweight, the most deprived areas and younger age groups offered weight/diet advice;
- Lower percentage uptake of referrals in deprived areas.

Smoking:-

- Lower uptake of referral to Stop Smoking services in the most deprived and younger age groups, females in particular.

Physical Activity:-

- Lower rates of brief interventions and offers of referral to exercise services in older populations;
- Lower offers of referral to exercise services in men but lower brief interventions in women;
- Potentially lower uptake in older age groups and more deprived quintiles.

Alcohol:-

- Differences in the percentage of attendees given a brief alcohol screen by gender, age, deprivation and CCG;
- Lower percentages of females and older age groups and by CCG receiving a full alcohol screen;
- A low percentage of those fully screened given advice, particularly in the deprived quintiles and younger age groups;
- Low numbers receiving a brief alcohol intervention or referral to alcohol services.

Disease diagnosis and Prescribing:-

- A lower than expected number of cases of diagnosed CKD and variation between CCGs;
- Differences in the follow up of attendees with raised blood pressure and blood glucose measurements;
- Lower adherence to Statins in the older age groups and differences in statin prescribing and decline rates by CCG.

Conclusions and Recommendations

The targeted method of invitation resulted in equitable access to the programme as a whole, but significant differences in uptake of offer within priority groups and apparent differences in the delivery and recording of health checks indicate both inequality and inequity within the programme that require further action.

When the NHS Health Check programme began, the initial focus was on ensuring the total eligible population was offered a health check within five years and reporting of data was primarily on overall performance of numbers offered and health checks completed. This may have resulted in less emphasis on prioritising the actual uptake in those already offered, particularly in the early stages of the programme. The more detailed analyses presented in this equity profile should provide the foundation for targeted actions to improve equity of uptake in

priority groups, increase overall uptake within the whole service and ensure people receive appropriate outcomes.

Recommendations identified from the equity profile will be presented to the JSNA board and partners to agree specific actions to:-

- Standardise and improve the quality of data recording to ensure it reflects the service provided, enabling more accurate evaluation and identification of areas for improvement;
- Identify and review the non-responders and those that did not attend, starting with the priority groups and those offered during the early stages, to focus on increasing uptake;
- Use evidence from the literature and the socio-demographic segmentation profiles of Derbyshire to identify wider actions for improving uptake tailored to the different populations by CCG and geography;
- Investigate operational differences between areas of high and low uptake with similar populations to assess whether service redesign could improve attendance;
- Ensure that all health care professionals are aware of, completing and recording the mandatory requirements of a health check to reduce inequalities in health screening, brief interventions and advice given;
- Investigate the reasons for inequalities in referrals to lifestyle services to determine whether service or person related factors could be influenced to increase equity of uptake of referrals;
- Investigate the relatively low diagnosis of CKD and apparent differences in follow up of patients with raised measurements.

1 INTRODUCTION

1.1 The NHS Health Check Programme

The NHS Health Check programme aims to prevent or delay the onset of cardiovascular disease (CVD) - including diabetes, heart disease, kidney disease and stroke - in people aged 40-74 years with no existing CVD, through the early identification and management of risk factors and early detection of disease. Whilst the primary objective of the programme is to offer a health check to the total eligible population every five years, the programme should also contribute to the reduction of health inequalities observed in the prevalence and outcomes of CVD[1].

The term 'health inequalities' refers to differences in health determinants, status and outcomes that can be observed between people or groups due to social, geographical, biological or other factors. Some determining factors that result in these differences or inequalities are fixed, such as age, whilst others, such as socio-economic status, can be mitigated. It is the latter factors that are considered to be *inequitable* i.e. unfair or unjust, because they could potentially be avoided.

A recent study found that gender, age, socio-demographic status, ethnicity, a greater clinical need or more risk factors present are associated with differential uptake of routine health check-ups that is likely to lead to inequity. Appropriate service redesign and interventions to encourage increased uptake among these groups is therefore necessary to reduce these inequities[2].

1.2 Health Equity Audit

Health Equity Audit (HEA) is a tool that can be used to identify health inequalities by reviewing health determinants, access to health services and related health outcomes between population groups, and then assessing whether this is fair in relation to their level of need. The overall objective is to then tackle any observed inequity by allocating resource fairly i.e. according to actual needs of different groups, rather than uniformly across an entire population.

Services are still delivered to the whole population, but the amount of resource is adjusted according to the needs of specific groups. This could be by increasing availability of services in certain geographical areas (access), improving uptake of services in particular population groups (use), modifying services for different populations (quality), or reducing morbidity and mortality in specific populations (outcomes)[3].

1.3 The NHS Health Check Programme in Derbyshire

The NHS Health Check programme was implemented in Derbyshire in 2009 under the now decommissioned Primary Care

[1] NHS Health Check Programme Best Practice Guidance, Dept. of Health and Public Health England, September 2013 http://www.healthcheck.nhs.uk/document.php?o=456

[2] Proportionate Universalism http://www.nice.org.uk/advice/lgb4/chapter/Glossary#/#proportionate-universalism

[3] Dryden et al (2012) http://www.biomedcentral.com/1471-2458/12/723 http://www.nice.org.uk/advice/lgb4/chapter/Glossary#/#proportionate-universalism

Trust. In April 2013 responsibility for the programme transferred to Derbyshire County Council authority under the Health and Social Care Act 2012 and is a statutory requirement and mandatory public health function in the Local Authorities Regulations 2013[4].

The programme operates on a 5 year cycle and 2013/14 was adopted as Year 1 under the new accountabilities. Derbyshire has to ensure that the total eligible population has been offered an NHS Health Check by March 2018 (all 40-74 year olds not diagnosed with MI, angina, stroke, heart failure, diabetes, CKD, hypertension, atrial fibrillation, or a family history of hypercholesterolemia, not being prescribed statins and with no previously recorded CVD risk score >20%). There is no set target for uptake, but authorities are required to seek continuous improvement in the percentage of eligible individuals taking up their offer of a health check, with an aspirational gold standard uptake rate of 75%.

However, responsibility does not lie solely with local authorities: delivery of the health check is often through general practice and pharmacies; additional testing and follow up is funded by NHS England through primary care; lifestyle interventions are carried out by commissioned health care providers; outcomes such as reducing mortality from CVD are shared with NHS Clinical Commissioning Groups (CCGs). Therefore, a wide variety of partners have a role to play in the successful delivery and outcomes of the programme.

1.4 Programme Structure and Delivery

Derbyshire County was an early implementer of the NHS Health Check Programme, and delivery was through General Practice by trained Health Care Assistants (HCAs). The programme began with a pilot scheme in April 2009 in 11 practices serving one of the most deprived areas of the county (Bolsover). The scheme was rolled out on a phased basis across practices, due to the requirement for staff to complete an extensive training programme. The cumulative roll out was as follows:-

- 21 practices by March 2010;
- 53 practices by March 2011;
- 80 practices by March 2012;
- 86 practices by March 2014;
- 6 practices not participating.

The roll out took longer than anticipated and was not implemented in all practices due to changes in organisational contracting and practice acceptance of the national programme.

1.4.1 Offer of a Health Check

A targeted approach to offer of invitation across the 5 year cycle was adopted, with the eligible population split into five cohorts based on estimated risk score. The cohort with the highest risk score was offered an invitation in the first year and so on to the fifth with the lowest risk scores in the final year. As practices started at different times, they are all at different stages of inviting their cohort.

[4]The Local Authorities (Public Health Functions and Entry to Premises by Local Healthwatch Representatives) Regulations 2013 S.I. 2013/351 http://www.legislation.gov.uk/uksi/2013/351/contents/made

From 2015, two pilot schemes to deliver health checks in a community setting have been implemented with a particular focus on areas with non-participating practices. Community health checks are outside the scope of this HEA (see Section 3.2).

1.4.2 Recording and Monitoring of Activity

Practice staff are responsible for administering the entire health check process. Offers of invitation, 'non-responders' and 'did not attends' (DNA) all require manual input of the Read code by staff. Recording of the health check uses a bespoke practice system template, designed within Derbyshire, which captures the entire health check process electronically and assigns the underlying Read codes to the patient record.

The Read coded data are extracted directly from practice systems (requiring upload by practices) and centralised into an anonymous dataset by an external company (The Computer Room, TCR). TCR are commissioned to provide an online reporting tool with a set of structured tables for analysis that is used to monitor health check activity.

Accurate monitoring is therefore dependent on input of the correct administration Read codes, full completion of an up to date health check template and upload of data to the central database. This means that Derbyshire has a relatively accurate dataset for comparing access, uptake and outcomes within the programme. Completeness and quality does vary however, although it has improved over time.

1.4.3 Derbyshire County Performance from 2013/14

Under the new accountabilities, the total estimated eligible population to be offered an invitation between April 2013 and March 2018 in Derbyshire County is 240,610.

The 5 year cumulative performance from April 2013 to July 2015 was 99,653 people offered a health check (41% of eligible population), and 53,283 receiving a health check (22% of eligible, 54% uptake). This is comparable to the England averages of 43% offered a health check, 21% receiving a health check and an uptake rate of 48%[5]. However, alongside overall performance, the programme should also contribute to the reduction of inequalities.

1.5 Health Equity Audit Process

There are 6 main stages of an HEA[6] which should be viewed as a cyclical process:

1 Agree partners and priorities
2 Equity profiling: data collection and analysis
3 Use evidence to identify effective local action
4 Agree local targets with partners
5 Influence changes in investment/service delivery
6 Review progress against local targets

This report covers stages 1 to 3, and will be used to inform stages 4 to 6.

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[5] http://www.healthcheck.nhs.uk/interactive_map/

[6] Health Equity Audit Made Simple, Health Development Agency, 2003 http://www.lho.org.uk/viewResource.aspx?id=7670

2 STAGE 1 – PARTNERS AND PRIORITIES

2.1 Accountability and Partners

The Derbyshire Joint Strategic Needs Assessment (JSNA) Board is accountable for this work as part of the commitment to conducting HEAs agreed by the Health and Wellbeing Board.

Identified stakeholders included in this HEA are: CCGs within Derbyshire County (Erewash, Hardwick, North Derbyshire, Southern Derbyshire); Primary Care providers - including GPs and HCAs; Health Referral programme providers; Patients.

HEA Steering Group Members:
Public Health, DCC:-
Shirley Devine, Senior Public Health Manager; Sue Thackray, NHS Health Check Lead; Nicola Richmond, Principal Public Health Analyst; Lynne Nurcombe, Knowledge Manager.
Wider Steering Group Members:
Dr Martin Andrew, GP, Ashgate Medical Centre; Jessica Holmes, HCA, Brooklyn Medical Centre and Community NHS Health Checks; Mel Turvey, Policy & Research Manager, DCC; Colleen Marples, Communications Manager, DCC.

2.2 Aim

The HEA aims to determine whether inequalities exist in the first offer and uptake of invitation, and in outcomes of attendance from the NHS Health Check programme in Derbyshire, and, where these represent inequity within the service, to agree and implement local actions for improvement with partners.

3 STAGE 2 – EQUITY PROFILE AND EVIDENCE REVIEW

3.1 Stage 2 Objectives

The objectives for the equity profile and evidence review, presented in this report, are to:

1. Conduct an equity profile data analysis:-
a. determine level of need across different population groups across the dimensions of age, sex, ethnicity, geography/practice, socioeconomic status and lifestyle behaviours;
b. identify any inequalities in the first offer and uptake of invitation and outcomes of attendance between these groups;
c. compare these measures to determine equity of the service.
2. Carry out a literature review of the evidence base with a focus on:-
a. differences in uptake between populations and reasons for this;
b. interventions for increasing uptake;
c. overall cost effectiveness of early intervention.

3.2 Equity Profile Scope

Data will be analysed for:-

- The period April 2010 to March 2015;
- GP practices that were participating across the time period in Derbyshire County;
- Glossopdale is not included as this area only became part of Derbyshire programme in April 2013 and electronic recording is not fully operational;
- Derby City is not included as it is a separate programme, commissioned and delivered differently to Derbyshire County;

- Where data are presented as 'Southern Derbyshire CCG' this therefore includes **County practices only;**
- Community health checks are not included as they are delivered differently to the primary care programme and are outside the HEA time period.

The following caveats apply:-

- The programme was rolled out on a phased basis, therefore not all practices will have data for the entire period.
- The baseline eligible population used as the denominator in this equity audit is based on the total population that has ever been eligible in the 5 year period. Therefore it includes all people that have ever received an offer or attended a health check during this time, in order to reflect the total population that has accessed the programme, even if they are no longer currently eligible (e.g. were diagnosed with a disease, or now aged 74+ years).
- The dataset is a 'rolling' extract: as data are uploaded on a monthly basis, the eligible population, numbers offered and checked and outcomes are all subject to change as each practice dataset is refreshed. The baseline dataset of eligible population, offered and attended, by gender, age, ethnicity and deprivation quintile was extracted at a set point in time and was used for the access and uptake analysis. Outcomes analysis and practice based analysis use different reports to the baseline dataset and numbers may not match exactly.
- Improvements and changes in data collection mean data quality is not as reliable for the first 2 years of the programme but they are included to give as complete a picture as possible of access and uptake since the programme began.
- The analysis concentrates on equity, and does not review performance against national key performance indicators.

3.2.1 Methodology

Population and need data will be obtained from national data sources. Health check activity data will be extracted using the commissioned electronic reporting tool. The registered eligible population, first offer, health checks completed and outcomes data, further split by demographic and socio-economic variables, are available for analysis.

3.2.1.1 Determining Need

Cardiovascular disease risk factors, prevalence, estimated undiagnosed disease, and mortality will be compared by age, sex, ethnicity, geography, and socioeconomic status where available.

3.2.1.2 Identifying Inequalities

- First offers will be measured as a percentage of the baseline eligible population.
- Attendance will be measured as a percentage of those offered.
- Outcomes (advice given, referral to services, prescription of statins and anti-hypertensives, and disease diagnosis) will be measured as a percentage of completed health checks.
- Measures will be stratified by: Age, Sex, Ethnicity, Deprivation, Geography and, where appropriate, by Smoking Status, BMI, Activity Level and Alcohol Consumption.

3.2.1.3 *Identifying Inequity*

Any identified inequalities in offers, uptake or outcomes for specific groups or in particular areas that are also recognised as having a higher level of need should be targeted to increase equity within the programme.

4 EQUITY PROFILE - THE HEALTH CHECK PROGRAMME IN DERBYSHIRE

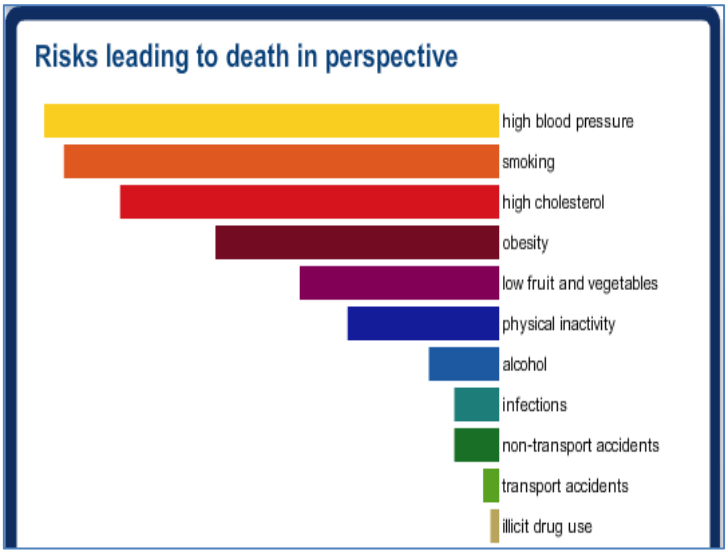
4.1 Cardiovascular Disease Risk Factors, Prevalence and Mortality

Age, gender and ethnicity are all factors that affect the likelihood of developing CVD that cannot be changed. However, other major contributory factors in developing CVD are those that can be modified, controlled or treated such as smoking, being overweight, physical inactivity, unhealthy diet, high cholesterol and hypertension.

Raised blood pressure (hypertension) is the single biggest risk factor for stroke and a major risk factor for coronary heart disease, and although risk is affected by age, it can be reduced through lifestyle and behavioural choices. For example, it is estimated that in 90% of first heart attack cases the risk will be related to behaviours that can be modified[7].

Many of these risk factors are linked and the more risk factors that are present, the greater the chance of developing CVD. The level of each factor further increases that risk. An estimated 40% of total disability adjusted life years lost can be attributed to smoking, high blood pressure, obesity and physical inactivity[8]. **Figure 1** shows the leading attributable lifestyle risk factors for causes of death in England.

Figure 1



Source: NHS Atlas of Risk (http://www.nhs.uk/Tools/Pages/NHSAtlasofrisk.aspx)

Therefore population groups that have multiple CVD risk factors present - and particularly those with high levels of each factor - could be categorised as having the most need for both accessing the health check programme and achieving good outcomes, at both an individual and a population level.

The absence of established risk factors at 50 years of age has been shown to be associated with a low lifetime risk for CVD and longer survival. This demonstrates the potential benefits of early intervention and prevention following access to a health

[7] http://www.nice.org.uk/guidance/ph25/chapter/2-public-health-need-and-practice

[8] Christopher L J Murray et al. UK health performance: findings of the Global Burden of Disease Study 2010, 2013, The Lancet http://dx.doi.org/10.1016/S0140-6736(13)60355-4

check for younger and lower risk populations.

An equitable approach does not therefore exclude these populations, but would expect resources to be adjusted to ensure that those with the highest risk and potential for the highest severity of illness and poorer outcomes are demonstrably accessing the programme.

A population needs analysis of CVD risk factors, prevalence and mortality from national data, split by demographic and socioeconomic group was carried out to indicate where levels of need may differ between populations. A summary is provided below and the full analysis table with references is in *Appendix 1*.

Box 1 - Summary of National Population Needs Analysis

Age and Gender: CVD risk increases with age for both men and women, but rises more steeply in men and they also have a greater overall lifetime risk. Patterns of health related lifestyle behaviours also differ with age and gender. Particular groups identified for specific factors include:-

Acute MI prevalence doubles in men from ages 45-54 to 55-64 years and angina prevalence between these ages is more than double for both men and women.	The percentage of **women aged 55+ with total cholesterol levels in the recommended range is markedly lower than that of men**.	Although smoking is decreasing, and is known to decline with age**, 24% of men and 19% of women aged 35-49** years are reported as current **smokers.** The risk impact of smoking is greater in younger women.	**Physical inactivity** increases with age and is **higher in women** than in men.
The reported prevalence of **untreated hypertension** is 13% and this **is higher in men** than women. Although it decreases with age this is much less marked for men.	**Men aged 45-64** years consistently have the **highest obesity** prevalence of all age groups at 33% and 78% are estimated to have excess weight. In **women, those aged 35-44 years have shown the biggest percentage increase** in obesity since 2003.	For men and women, **excess alcohol consumption is highest in 45-54 and 55-64 year olds**, but men have higher prevalence of high risk drinking.	**Fruit and vegetable intake is lower in men, whilst average daily salt intake is higher, and, unlike women, this does not decrease with age.** However, both men and women consume above the recommended levels for both salt and saturated fat.

Ethnicity: The risk of developing CVD is higher for certain ethnic groups due to a combination of physical and lifestyle related factors. Particular groups identified for specific factors include:-

Higher risk of CHD in Pakistani men, higher risk for **angina in Bangladeshi women**, higher prevalence for **CHD and angina in Indian women.**	**Higher** risk ratio for **hypertension in Black Caribbean and Bangladeshi women.**	Higher prevalence of **low HDL cholesterol in Pakistani men, Bangladeshi men and women.**	**Higher waist to hip ratio** in Pakistani and Bangladeshi men and women, and **Black Caribbean and Black African women.**
Higher risk of diabetes in Pakistani and Indian men, Pakistani women, Bangladeshi men and Black Caribbean men and women.	Higher incidence and **mortality from stroke in Black Caribbean men and women.**	**Higher obesity** prevalence compared to men for **Black African, Pakistani and Bangladeshi women.**	Asian populations also report higher levels of inactivity and higher use of salt in cooking.

<table>
<tr><td colspan="4">Deprivation: There is a clear relationship between socio-economic factors and the prevalence of CVD, associated risk factors, and poorer outcomes. Particular groups identified for specific factors include:-</td></tr>
<tr><td>In men, CVD prevalence increases from 15% in the least deprived areas to 22% in the most deprived areas.
In women, prevalence increases from 13% to 21%.</td><td>Beneficial levels of HDL cholesterol decrease in line with lower income and this is more marked in women than in men.</td><td>29% of those in routine and manual occupations are smokers compared to 12.7% in managerial and professional roles. Smoking prevalence in the unemployed is estimated to be 35%.</td><td>Fruit and vegetable consumption decreases in line with income and the proportion of total expenditure on processed food, generally higher in sugar, fat and salt, is significantly higher in the 10% least affluent households.</td></tr>
<tr><td>Diabetes prevalence is related to lower income, with men and women in the lowest quintile 2.3 and 1.6 times more likely to have diabetes respectively.</td><td>Those in deprived groups have higher levels of obesity, and the association has been found to be higher in women.</td><td>Physical inactivity is highest in those employed in lower supervisory and routine roles.</td><td>The relationship between socioeconomic deprivation and excess alcohol consumption is not clear cut, but evidence suggests those in high income professions drink more frequently and above the recommended levels, whilst those in more deprived areas may have higher rates of binge drinking.</td></tr>
<tr><td colspan="4">Learning Disabilities: CHD is the leading cause of death in people with learning disabilities and prevalence of risk factors including obesity, physical inactivity and poor diet are higher, contributing to increased risk of associated diseases such as diabetes.</td></tr>
<tr><td colspan="4">Mental Health Disorders: A higher prevalence of lifestyle related CVD risk factors such as smoking, obesity, and alcohol misuse, linked to wider social and economic factors such as unemployment, contribute to the increased CVD prevalence and mortality rates experienced by people with both severe mental illness and with mood and neurological disorders.</td></tr>
</table>

A recent study using a sample from a national database of patients that had received a health check supports the national summary analysis[9]. This study reported, as shown in Table 1, that men had a higher overall CVD risk profile, a higher smoking prevalence and more cases of newly identified hypertension compared to women. However, levels of obesity were the same for both. A higher percentage of women had elevated cholesterol compared to men and it significantly increased with age in women. Hypertension and diabetes increased with age, whilst smoking and obesity declined with age for both men and women.

[9] Forster A, Dodhia H, Booth H et al (2014). *Estimating the yield of NHS Health Checks in England: a population-based cohort study*. Journal of Public Health doi:10.1093/pubmed/fdu079

Table 1 - Cardiovascular Disease Risk Factors: Numbers, Percentage and per 1000 Patients Attending an NHS Check by Gender and Age group

% (Number) All Ages	Males (Cohort: 65,324)			Females (Cohort: 75,032)		
Obese (BMI 30+)	22% (14,426)			23% (16,933)		
Smoker	21% (13,397)			16% (12,067)		
Hypertensive (BP >140/90)	35% (23,175)			25% (18,570)		
Elevated cholesterol (>5 mmol/l)	63% (41,331)			67% (50,088)		
Numbers per 1000 by Age Group (95% CI)	Male			Female		
	40-54	55-64	65-74	40-54	55-64	65-74
Obese (BMI 30+)	244 (232-256)	218 (208-228)	168 (158-177)	244 (234-254)	221 (212-230)	189 (180-199)
Smoker	237 (225-250)	194 (182-206)	142 (131-153)	188 (176-199)	150 (139-161)	113 (104-122)
Hypertensive (BP >140/90)	300 (285-316)	388 (373-403)	439 (422-456)	167 (159-176)	280 (269-292)	389 (374-404)
Elevated cholesterol (>5 mmol/l)	611 (581-641)	658 (632-684)	649 (631-666)	537 (514-559)	780 (758-801)	816 (799-832)
Diabetes	6 (5-7)	8 (7-10)	8 (6-10)	3 (2-4)	4 (3-5)	5 (4-7)

4.2 CVD Risk Factors, Prevalence and Outcomes within Derbyshire

The differences in population composition within Derbyshire will therefore impact on the level of need overall and for specific groups between geographical areas and GP practices. In order to provide an equitable service the programme would require an approach tailored to the different needs.

Figure 2 provides a summary of CVD related risk factors, prevalence and outcomes for Derbyshire County, District Local Authorities and Derbyshire County CCGs in comparison to England.

The summary highlights that within Derbyshire there are inequalities in CVD health determinants and outcomes. Variation exists across all areas for prevalence of lifestyle risk factors, existing disease prevalence and premature mortality from CVD, but is particularly evident in more deprived areas such as Bolsover and Chesterfield which are significantly worse across a range of indicators.

Bolsover and Chesterfield have significantly lower male and female life expectancy at birth, and healthy life expectancy at birth is significantly worse in nearly all of the Derbyshire County CCGs.

Two thirds of people in Derbyshire are estimated to be overweight or obese, significantly higher than England, as are Amber Valley, Bolsover, Erewash and South Derbyshire districts. Bolsover has a significantly higher percentage of physically inactive adults.

A fifth of adults are smokers in Bolsover, Chesterfield, Erewash and High Peak, mirrored in the CCG recorded smoking prevalence in Erewash, Hardwick and Tameside and Glossop.

Bolsover has significantly higher hospital episodes for alcohol-related CVD conditions in men. Chesterfield is significantly higher for hospital episodes for alcohol-related CVD conditions in both men and women. North East Derbyshire is significantly worse for female alcohol related admissions; this is reflected in Hardwick CCG.

Estimated prevalence of CHD, Stroke and Diabetes in Derbyshire is above average, particularly in Bolsover and Chesterfield. Two thirds of people in Derbyshire are estimated to have hypertension and approximately 30% of cases may be undetected. This equates to an estimated 80,000 people in Derbyshire County with an undiagnosed major risk factor for CVD.

Derbyshire has a significantly worse male <75 mortality rate from CVD that is considered preventable. In Chesterfield, premature mortality CVD outcomes are significantly worse across most indicators. Hardwick CCG has a significantly higher hospital admission rate for CHD and complications associated with diabetes. In Southern Derbyshire CCG admissions for heart failure and premature mortality from CHD are significantly higher.

The national population needs analysis (Box1, Appendix 1) and Derbyshire analysis (Figure 2) highlight that certain groups are associated with a higher risk of developing CVD and therefore it should be a priority that these populations within Derbyshire are offered a health check, subsequently attend, and achieve appropriate outcomes.
They are:-

- Males;
- Older age groups, particularly men;
- Minority ethnic groups, particularly South Asian groups;
- Those living in deprived areas likely to have multiple risk factors, such as Bolsover and Chesterfield;
- Areas with a higher eligible population of older males with potentially undiagnosed hypertension;
- Those likely to have elevated cholesterol or low HDL, particularly in older women and women in deprived groups and minority ethnic groups;
- Those identified as or at higher risk of obesity, particularly those from deprived groups, ethnic minority groups and younger female age groups;
- Those in areas with high smoking prevalence and higher eligible populations of younger age groups;
- Patients from less deprived areas with potentially unknown risk of hazardous drinking;
- Those in areas with significantly poorer outcomes from CVD

Figure 2

Derbyshire Needs Analysis Summary

KEY: Comparison with England	Not Compared	Better	Similar	Worse	Lower	Higher	*Value supressed due to small numbers or data quality reasons

	Period	England	East Midlands	Derbyshire	Amber Valley	Bolsover	Chesterfield	Derbyshire Dales	Erewash	High Peak	North East Derbyshire	South Derbyshire
Index of Multiple Deprivation (Higher Score is More Deprived)	2010			18.5	17.9	27.2	24.3	12.6	19.2	15.8	16.9	13.6
Life Expectancy at birth (Male)	2011-13	79.4	79.3	79.4	79.2	78.1	78.2	81.0	79.8	79.7	80.0	79.7
Life Expectancy at birth (Female)	2011-13	83.1	83.0	83.2	83.6	82.2	82.2	84.2	83.5	83.2	83.4	82.7
Percentage of overweight adults (not including obese)	2012	40.8	41.5	42.2	41.0	41.5	41.2	43.0	44.9	37.5	42.3	46.2
Percentage of adults with excess weight (overweight & obese)	2012	63.8	65.6	66.9	69.0	72.5	67.7	62.5	69.2	57.6	67.2	68.4
Percentage of physically inactive adults	2013	28.3	28.6	29.7	29.4	36.0	32.9	24.5	29.9	28.8	30.9	24.7
Smoking prevalence (18+)	2013	18.4	19.1	17.5	12.3	23.0	20.3	10.0	19.6	21.2	18.9	14.8
Smoking prevalence - routine & manual	2013	28.6	29.5	25.4	25.4	21.7	28.5	15.7	33.7	32.2	19.3	22.7
Alcohol related admissions to hospital (P)	2013/14	443.7	439.6	478.7	474.4	498.9	585.7	434.3	473.4	469.7	501.4	391.1
Alcohol related admissions to hospital (M)	2013/14	593.7	584.2	625.7	623.0	652.6	736.7	574.7	648.2	605.6	638.3	518.4
Alcohol related admissions to hospital (F)	2013/14	310.3	310.3	347.6	340.8	363.2	450.2	306.3	317.9	350.8	378.9	278.8
Admission episodes for alcohol-related CVD conditions (P)	2013/14	1049.3	929.8	910.0	694.7	1164.6	1135.2	704.3	800.2	958.9	1052.8	853.3
Admission episodes for alcohol-related CVD conditions (M)	2013/14	1523.8	1349	1340.8	1068.8	1678.7	1651.8	1077.8	1172.4	1424.8	1517.0	1253.1
Admission episodes for alcohol-related CVD conditions (F)	2013/14	672.9	594.2	569.0	393.0	747.3	735.2	415.7	511.8	599.2	675.7	532.6
Estimated CHD Prevalence	2011	5.8	5.80	6.1	6.0	6.6	7.0	6.5	5.7	5.9	6.3	5.0
Estimated Stroke Prevalence	2011	2.55	2.55	2.7	2.6	2.8	3.0	3.1	2.5	2.5	2.8	2.3
Recorded Diabetes	2013/14	6.21	6.64	6.71	6.65	7.97	7.41	6.03	6.50	5.65	7.10	6.32
Estimated Hypertension Prevalence	2011	30.5	30.8	32.6	33.2	33.2	33.4	34.2	31.9	32.4	34.7	28.6
Under 75 mortality rate from all CVD (P)	2011-13	78.2	80.0	78.2	79.8	85.4	97.8	63.9	69.1	87.3	75.9	65.1
Under 75 mortality rate from all CVD (M)	2011-13	109.5	111.5	109.7	114.7	119.7	132.1	90.6	100.9	120.9	105.9	89.6
Under 75 mortality rate from all CVD (F)	2011-13	48.6	49.7	47.5	45.2	51.3	64.6	38.2	38.7	54.5	47.3	40.8
Under 75 mortality rate from CHD (P)	2011-13	43.0	45.58	45.95	51.27	51.15	56.01	41.5	39.29	45.11	44.28	37.99
Under 75 mortality rate from CVD considered preventable (P)	2011-13	50.9	53.9	53.8	58.5	59.4	65.7	47.3	47.8	53.9	52.6	43.6
Under 75 mortality rate from CVD considered preventable (M)	2011-13	76.7	81.8	82.8	92.1	91.1	100.2	71.5	74.5	82.5	79.0	67.9
Under 75 mortality rate from CVD considered preventable (F)	2011-13	26.5	27.1	25.7	25.0	27.9	32.8	24.0	22.2	26.3	27.3	*

	Period	England	Erewash CCG	Hardwick CCG	North Derbyshire CCG	Southern Derbyshire CCG	Tameside and Glossop CCG
Index of Multiple Deprivation (Higher Score is More Deprived)	2010	21.5	19.3	27.9	18.5	21.6	28.6
Healthy Life Expectancy at birth (Male)	2010-12	63.5	62.4	58.4	63.4	62.8	59.6
Healthy Life Expectancy at birth (Female)	2010-12	64.8	63.2	60.1	64.8	63.7	61.2
Recorded Obesity (16+)	2013/14	9.4	11.2	10.6	10.4	10.4	10.7
Percentage of physically inactive adults	2012	28.5	27.5	31.6	27.8	27.7	32.8
Estimated Smoking prevalence (15+)	2013	19.1	20.1	21.5	17.6	18.8	23.2
Alcohol related admissions to hospital (P)	2013/14	443.7	494.1	534.4	497.4	478.0	606.8
Alcohol related admissions to hospital (M)	2013/14	593.7	674.8	681.3	639.4	643.6	810.3
Alcohol related admissions to hospital (F)	2013/14	310.3	331.8	405.1	369.5	329.7	423.0
Admission episodes for alcohol-related CVD conditions (P)	2013/14	1049.3	838.1	1205.9	977.6	716.6	1266.3
Admission episodes for alcohol-related CVD conditions (M)	2013/14	1523.8	1222.0	1723.0	1441.1	1053.6	1801.7
Admission episodes for alcohol-related CVD conditions (F)	2013/14	672.9	541.3	788.3	614.1	451.8	843.4
Recorded CHD prevalence	2013/14	3.3	3.6	4.7	4.2	3.4	4.1
Recorded Stroke prevalence	2013/14	1.7	2.0	2.2	2.3	1.8	2.0
Recorded Diabetes	2013/14	6.21	6.5	8.1	6.6	6.7	7.1
Recorded Hypertension prevalence	2013/14	13.7	15.8	17.8	16.3	14.0	14.9
Estimated percentage of detected hypertension	2011	54.3	57.0	61.2	56.8	56.8	56.6
Coronary Heart Disease Admissions (P)	2013/14	560.0	427.1	626.4	565.846	492.09	886.0
Heart Failure Admissions (P)	2013/14	133.7	131.4	145.8	120.949	158.5	167.3
Complications associated with diabetes	2011/12	100	94.9	121.8	100.6	87.3	118.5
Under 75 mortality rate from all CVD (P)	2013	64.9	63.6	74.2	68.5	71.8	107.2
Under 75 mortality rate from all CVD (M)	2013	41.8	42.8	49.8	40.4	43	88.2
Under 75 mortality rate from all CVD (F)	2013	88.0	84.5	98.6	96.6	100.7	126.2
Under 75 mortality rate from Coronary Heart Disease (P)	2013	42.1	37.5	46.7	41.1	53.4	80.9

Sources: Public Health England Public Health Profiles (http://fingertips.phe.org.uk/), including Public Health Outcomes Framework, General Practice Profiles, Cardiovascular Disease Profiles, and Local Alcohol Profiles. HSCIC, CCG Outcomes Indicato Set (https://indicators.ic.nhs.uk/webview/)

4.3 Literature Review

In November 2014 Public Health England published a national literature review as part of a consultation on the NHS Health Check programme research priorities which included 62 references covering guidance, reports and reviews, cross-sectional, cohort and modelling studies, controlled trials, qualitative and case studies, and service evaluations[10]. In June 2015, the Journal of Public Health had a special section on NHS Health Checks featuring invited debate and 6 original articles[11].

In addition, the HEA steering group identified five key areas on which to undertake a literature search locally:-

1. Population characteristics and reasons for not taking up the offer of an NHS Health Check;
2. Healthcare professional perspectives on reasons for non-attendance;
3. Interventions for increasing NHS health check uptake and their cost effectiveness;
4. Cost and cost-effectiveness of early intervention for cardiovascular disease;
5. Per person cost of an NHS Health Check.

Box 2 summarises some of the main findings of the national and local literature reviews into the categories identified by the HEA Steering group. However, the detailed results from the literature review should be considered in full and can be found in *Appendix 2*. The study reference number and year of study linking back to the full review are in brackets.

Box 2 - Summary of Local Literature Review Findings

1. Population characteristics and reasons for not taking up the offer of an NHS Health Check

Higher Uptake in: Older patients (2, 2013). Increasing age; females; least deprived areas (6, 2015). South Asian groups; smaller practices (4, 2011). Older age; more affluent (5, 2013). Older age (8, 2014). Telephone/verbal invitations (6, 2015). Previous screening; age; more GP visits (7, 2013). Patients attending practice more frequently; open to behaviour change (3, 1993).

Lower uptake in: Younger men (4, 2011). Smokers (7, 2013). Male low income; low socioeconomic status; unemployed; not married; smokers; greater clinical need and higher risk status (8, 2012). Men; manual occupation; higher risk behaviour e.g. smokers, heavy drinkers, unhealthy diet, obese, rare practice attendance (3, 1993). Practice variation (5, 2013).

Reasons for Lack of Uptake: lack of awareness of the health check programme; beliefs about susceptibility to CVD; beliefs about civic responsibility; issues concerning access to appointments; beliefs about the consequences of having a check (1, 2014). Lack of public interest (5, 2013). Low self efficacy; low belief in health checks (8, 2012).

Improving uptake: Emphasizing the benefits of prevention and early detection might encourage attendance in those who are reluctant to burden the public health-care systems. Extending outreach initiatives and increasing 'out of hours' provision at local community sites could facilitate access (1, 2014). Telephone/verbal invitations - better response (6, 2015). Central role of GP promotion (7, 2013).

[10] NHS Health Check programme: literature review, PHE, Nov 2014
https://www.gov.uk/government/consultations/nhs-health-check-programme-priorities-for-research

[11] Journal of Public Health, Volume 37 Issue 2, June 2015 http://jpubhealth.oxfordjournals.org/content/current

2. Healthcare professional perspectives on reasons for non-attendance
No literature was identified which answered this specific question.
3. Interventions for increasing NHS health check uptake and their cost effectiveness
Non practice based provision may appeal to males, younger age groups, and harder to reach populations (13, 2015), (17, 2011), (24, 2010)**.** Acceptance and satisfaction with users of alternative provision is high (22, 2013). Drop in and opportunistic clinics are likely to be cost effective whilst achieving good uptake and identification of abnormal findings (10, 2011), (20, 2011). The organisational, cost and quality aspects of alternative provision need to be considered (16, 2013), (20, 2011), (21, 2011), (25, 2011). A targeted approach to screening is cost effective, but requires high quality data for identification (14, 2010), (10, 2011). Contract management and alternative provision for under achievement can achieve high rates. (15, 2013).
4. Cost and cost effectiveness of early intervention for cardiovascular disease
Debate and opposing views for prescription of Statins and Anti-hypertensives in low risk populations For Statins: NICE guidance recommends statins be offered to people with >=10% risk of developing CVD for primary prevention (27, 2014). Supporting studies:(28, 2013), (33, 2014), (32 ,2007). Against Statins: (29, 2015), (30, 2010), (31, 2013). For Anti-hypertensives: Estimated savings of £20K per 100,000 through implementation of NICE hypertension guidance (35, 2011). Supporting study: (37, 2003). Against Anti-hypertensives: (36, 2015). **Lifestyle Interventions** **Smoking Cessation**: Total cost impact difficult to quantify (38, 2008) but potential to achieve cost effectiveness despite poor quit rates (39, 2011). **Diet and Exercise**: Annual resource impact for implementation of NICE obesity guidance estimated to be £28,000 per 100,000 population (40, 2014). Exercise referral schemes estimated gain of ~800 QALYS and likely to be cost effective but increase in benefits moderate and highly sensitive to scheme implementation, limited evidence (41, 2013, 42, 2011). **Alcohol:** Nurse and GP led universal alcohol screening and brief intervention programmes in primary care found to be cost-effective, under all but the most pessimistic assumptions for programme costs, effectiveness and compared to no programme (44, 2013).
5. *Per person cost of an NHS Health Check*
The cost per person of an NHS health check is dependent on a wide variety of different variables including location, level of staff delivering the check, programme administration etc. The Department of Health Impact Assessment - Putting prevention first - Vascular Checks: risk assessment and management estimated £332m as average annual cost incurred each year by the NHS to deliver additional checks and interventions arising from programme (46, 2008). Debate on total costs of NHS Health Checks argues that this is likely to be closer to £450 million per year and queries whether cost effectiveness is as high as first estimated (47, 2015).

4.4 NHS Health Check in Derbyshire - Eligible Population, Offer and Uptake of Invitation

As outlined in Section 1.4, the structure and delivery of the programme will have affected the level of access across population groups as a discrete factor:-

- Those with the highest CVD risk were prioritised for invitation using a targeted approach;
- The phased roll out means practices are at different stages of inviting their targeted cohorts affecting the percentage offered between specific groups and overall.

Therefore, access to the programme has not been equal across the entire population, however, this does not mean that access has been *inequitable* if it reflects the level of need.

Based on the national and local needs analysis, for the programme to be equitable it would be expected that:-

- A higher proportion of men, those in the older age groups, and those in the more deprived socio economic groups will have been offered an invite;
- A proportional number of minority ethnic groups will have been offered an invite;
- Uptake of invitation should be higher in these groups.

In areas that have been carrying out health checks for several years it would be expected that:-

- A higher percentage of younger people will have been offered an invite, and particularly those in the more deprived socio economic groups and male;
- A proportional number of younger females will have been offered an invite, due to the prevalence of lifestyle risk factors such as obesity and physical inactivity in younger women.

4.4.1 Summary of Eligible Population

The summary below briefly describes the baseline eligible registered population in Derbyshire County since the start of scheme. This is analysed in more detail by age, gender, deprivation and geography for offer and uptake of invitation and then compared against need to identify potential inequities.

Area	Summary Characteristics of Eligible Population	Literature Review and Needs Profile Considerations
Derbyshire	51% eligible are female, with a higher proportion in older age groups compared to men A third eligible in most deprived quintiles, a higher proportion of which are in the younger age groups An older population in less deprived areas Higher overall deprivation in the North and East and Urban centres A higher percentage of men are estimated high risk A relatively low proportion in minority ethnic groups, primarily located in the South of the county and Urban areas Age, ethnicity and deprivation variation between CCGs	Potential for higher uptake in areas with older more affluent populations but could miss younger more deprived populations benefitting from early intervention or those under estimating level of risk Variation in age, ethnicity and associated risk factors between geographical areas requires different approaches to increase uptake

Erewash CCG	A higher proportion of eligible men and women aged 40-49 A mixed population with areas of high deprivation A higher percentage of those classified as Black African/Caribbean than in Derbyshire	Lower uptake seen in younger age groups, and more deprived areas, lower uptake in those with higher risk behaviour
Hardwick CCG	Two thirds of eligible population in 40% most deprived LSOAs A higher proportion of eligible population in younger age groups in most deprived quintile	A high level of overall population need where risk could be underestimated by the population particularly in younger deprived groups, lower uptake in those with higher risk behaviours, a potentially harder to reach population
North Derbyshire CCG	An older population with higher proportion of men and women aged 55-64 and 70-74 Chesterfield has a higher percentage of those classified as Black African/Caribbean than in Derbyshire	Better uptake seen in older populations that are less deprived and a potentially higher number of older women that could benefit
Southern Derbyshire CCG (County)	A younger, relatively less deprived eligible population overall, but certain areas with high deprivation The highest number in minority ethnic groups, particularly Asian	Potentially hard to reach less deprived younger population, more ethnically diverse in certain areas and population risk factors may differ to other areas.

4.4.2 Eligible Population - Age and Gender

Table 2 shows the baseline eligible population for Derbyshire County based on the constituent CCGs. A higher proportion is in younger age groups, which reflects the increased risk with age of having already developed CVD.

The proportion of eligible women to men is higher in the older age groups, a reflection of the overall lower risk in women but as seen in the population needs analysis could also be due to a lower likelihood of having already being diagnosed and treated.

North Derbyshire CCG has the largest total eligible population and a significantly higher percentage in the 70-74 years and 55-64 years groups.

Southern Derbyshire CCG (County) has the youngest eligible population, significantly higher for females 40-49 years and males 40-44 years.

Erewash CCG and Hardwick CCG have a smaller eligible population, but more men in the youngest age groups.

Table 2 - Baseline Eligible Population by Gender and Age

	Derbyshire County		Erewash CCG		Hardwick CCG		North Derbyshire CCG		Southern Derbyshire CCG	
Total	246,772	%	32,080	%	32,072	%	102,652	%	79,968	%
Females	126,607	51.3%	16,190	50.5%	16,509	51.5%	52,695	51.3%	41,213	51.5%
Males	120,165	48.7%	15,890	49.5%	15,563	48.5%	49,957	48.7%	38,755	48.5%
F 40-44	22,254	18%	2,930	18%	3,003	18%	8,662	**16%**	7,659	**19%**
F 45-49	24,419	19%	3,288	**20%**	3,212	19%	9,708	**18%**	8,211	**20%**
F 50-54	22,423	18%	2,997	19%	2,970	18%	9,231	18%	7,225	18%
F 55-59	18,184	14%	2,250	14%	2,355	14%	7,853	**15%**	5,726	14%
F 60-64	15,192	12%	1,869	12%	1,865	**11%**	6,594	**13%**	4,864	12%
F 65-69	13,978	11%	1,715	11%	1,774	11%	6,034	11%	4,455	11%
F 70-74	10,157	8%	1,141	**7%**	1,330	8%	4,613	**9%**	3,073	**7%**
M 40-44	22,223	18%	3,184	**20%**	2,914	19%	8,617	**17%**	7,508	**19%**
M 45-49	24,373	20%	3,278	21%	3,333	**21%**	9,862	20%	7,900	20%
M 50-54	22,656	19%	3,108	20%	2,871	18%	9,472	19%	7,205	19%
M 55-59	17,393	14%	2,242	14%	2,251	14%	7,517	**15%**	5,383	**14%**
M 60-64	13,452	11%	1,750	11%	1,678	11%	5,768	12%	4,256	11%
M 65-69	11,699	10%	1,410	**9%**	1,443	9%	5,025	10%	3,821	10%
M 70-74	8,369	7%	918	**6%**	1073	7%	3696	**7%**	2682	7%

Comparison to Derbyshire Avg | Significantly Lower | Significantly Higher

NB The **baseline** eligible population includes all people that have ever been invited or assessed across the 5 years of data, some of whom may now be aged 75+ years but will no longer be in the current cycle. Age band is based on current age group because Age at Time of Event is not available for the eligible population that have not yet been invited/assessed and personal data are not extracted e.g. DOB. Therefore those now aged 75+ are included in the 70-74 age group.

4.4.3 Access and Uptake– Gender and Age

As would be expected from a targeted approach to invitation starting with highest risk, the percentage of the eligible population that has been offered a health check is higher in men compared to women, and in the older age groups compared to the younger age groups.

The percentage offered by gender and age is affected by the differences between practices in the time since start of programme, as those that have been running for a shorter period will not yet be working towards the lower risk populations.

4.4.3.1 First Invites Offered – Gender and Age

- 57% of females and 69% of males have been offered a first invite across the 5 years (**Table 3**).
- Overall women are 40% less likely to have been invited (Odds Ratio (OR) 0.61, 95% CI 0.60-0.62, p<0.001).
- A higher percentage of females have been invited in areas that have been running the programme for a longer period.
- As age decreases, the differences in proportions invited between men and women increases (**Figure 3**).

4.4.3.2 Uptake – Gender and Age

- Uptake by gender and age is in line with the literature, with higher rates overall seen in women and older age groups.
- Uptake of offer is significantly higher in females at 64% compared to 60% in males.
- The likelihood of attending a health check is between 18% and 23% higher in

women compared to men (OR 1.20, 95% CI 1.18- 1.23, p<0.001).

- The percentage uptake increases in line with age in both men and women, however, although overall attendance is higher in women than men this is not true across all age groups (**Figure 4**).
- There is an inverse relationship with uptake by age – uptake is significantly lower in younger males compared to females, but significantly higher in older males compare to older females (**Figure 5**).
- Men aged 40-49 have a significantly lower uptake rate compared to women of the same age.
- Females aged 65-74 have a significantly lower uptake rate compared to men of the same age.

Table 3 – First Invites and Attendance by Gender and Age 2010-2015

Total	Eligible	Invited	% of Eligible Invited	95% CI	Assessed	% of Invited Assessed	95% CI
Females	126,607	72,258	57%	56.8-57.3	46,306	64%	63.7-64.4
Males	120,165	82,466	69% ▲	68.4-68.9	49,237	60% ▼	59.4-60.0
F 40-44	22,254	7,481	34%	33.0-34.2	3,002	40%	39.0-41.2
F 45-49	24,419	10,080	41%	40.7-41.9	4,892	49%	47.6-49.5
F 50-54	22,423	12,070	54%	53.2-54.5	6,604	55%	53.8-55.6
F 55-59	18,184	12,070	66%	65.7-67.1	7,549	63%	61.7-63.4
F 60-64	15,192	11,225	74%	73.2-74.6	8,163	73%	71.9-73.5
F 65-69	13,978	10,930	78%	77.5-78.9	8,768	80%	79.5-81.0
F 70-74	10,157	8,402	83%	82.0-83.4	7,328	87%	86.5-87.9
M 40-44	22,223	10,723	48% ▲	47.6-48.9	3,770	35% ▼	34.3-36.1
M 45-49	24,373	15,519	64% ▲	63.1-64.3	6,907	45% ▼	43.7-45.3
M 50-54	22,656	16,287	72% ▲	71.3-72.5	8,668	53% ▽	52.5-54.0
M 55-59	17,393	13,386	77% ▲	76.3-77.6	8,276	62% ▽	61.0-62.6
M 60-64	13,452	10,583	79% ▲	78.0-79.4	7,607	72% ▽	71.0-72.7
M 65-69	11,699	9,250	79% △	78.3-79.8	7,612	82% ▲	81.5-83.1
M 70-74	8,369	6,718	80% ▼	79.4-81.1	6,397	95% ▲	94.7-95.7

Comparison Males to Females: Sig Lower: ▼ Sig Higher: ▲ Lower: ▽ Higher: △

Figure 3

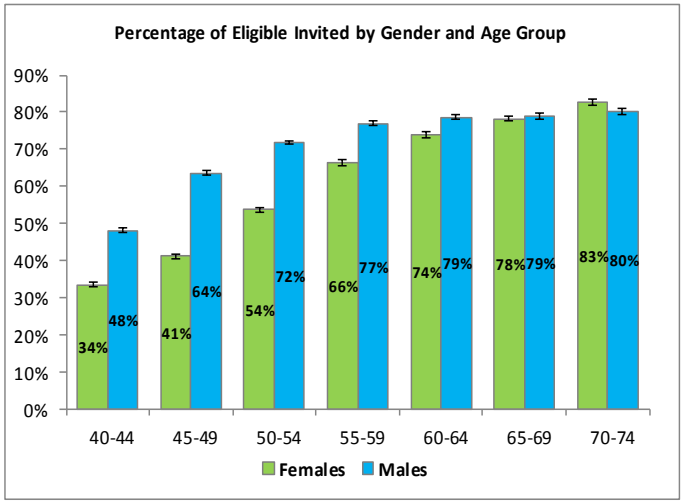


Figure 4

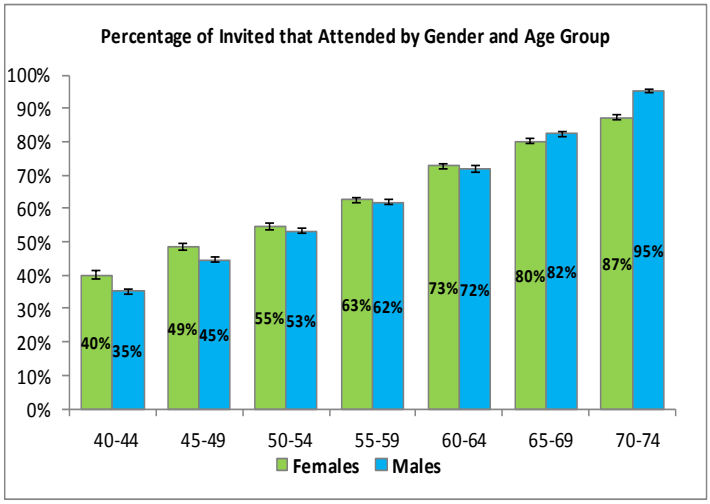
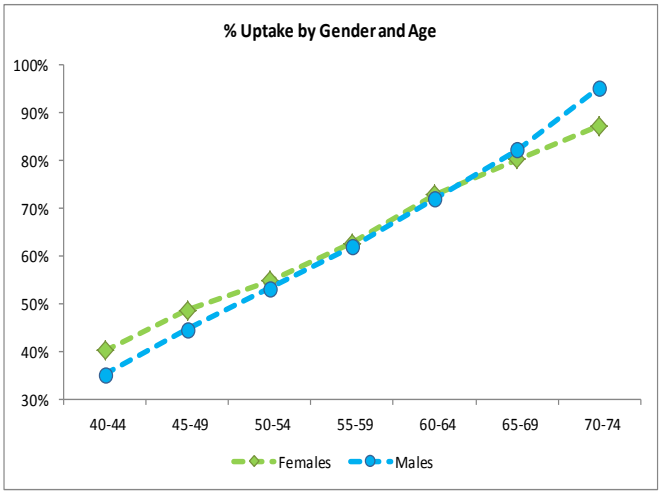


Figure 5



Gender and Age - Equity Analysis and Recommendations:-

- There are differences by both gender and age group that could represent inequities of access and uptake within the programme;
- Overall, women are less likely to have been offered an invite, and this is primarily due to differences in the younger age groups;
- However, as a targeted approach was used this does not necessarily mean there is inequity since it reflects the overall higher risk profile in men and the percentage of females offered will increase as areas that have been running for a shorter period of time begin to invite their lower risk populations;
- There is an inequity of attendance in men overall, but not across all age groups.
- **As estimated risk score is based on recorded measurements, it needs to be ensured that a targeted approach to invitation does not overlook potential unmeasured risk factors such as elevated cholesterol, obesity and physical inactivity, which can be more prevalent in women;**
- **As uptake is high in men aged 70-74 it should be ensured they are offered an invite, however, the uptake of women the same age needs to be increased relative to the numbers offered;**
- **Uptake in the youngest age groups needs to increase overall, but particularly in young men, a higher percentage of whom have been invited but not yet attended compared to younger women.**

4.4.4 Access and Uptake by CCG – Gender and Age

Practices in Hardwick CCG were the first to start the phased roll out of the health check programme, followed by Erewash CCG, and these CCGs have therefore invited a higher proportion of the overall eligible and younger populations across the time period.

Table 4 summarises offers and uptake by CCG compared to the average.

- As expected the overall percentage of the male eligible population invited is significantly higher than females in all CCGs.
- It is also the case that the overall percentage of males that have attended compared to females is significantly lower across all CCGs.

- The results by CCG appear to reflect the population profiles and literature review, with lower uptake in deprived areas and younger age groups.

Erewash CCG

- In comparison to the average, overall female and male uptake is significantly lower, primarily due to the younger age groups.
- Although they have invited a higher proportion of the younger population compared to other CCGs, this is not reflected in attendance.

Hardwick CCG

- Compared to the average, overall female and male uptake is significantly lower, primarily due to the younger age groups.
- Although they have invited a higher proportion of the younger population compared to other CCGs, this is not reflected in attendance.
- Uptake in men 45-49 and 50-54 is significantly lower compared to Derbyshire.

North Derbyshire CCG

- Uptake is significantly higher than the average in males and females but there is a difference between age groups.
- Uptake is significantly lower in men aged 40-44 and 45-49 compared to women.

Southern Derbyshire CCG (County)

- Uptake is significantly higher than the average in males and females but there is a difference between age groups.
- Uptake is significantly lower in men of all ages with the exception of 65-74 year olds.
- However overall uptake rates are better than average in the younger age groups, particularly females.

CCG Gender and Age - Equity Analysis and Recommendations:-

- **The profile of higher deprivation overall, and in younger age groups and men, in Hardwick CCG and Erewash CCG is reflected in poorer attendance rates and is likely to represent inequity in uptake for these groups. Focus should be on improving uptake in the already invited populations.**
- **Uptake in younger men in North Derbyshire could be improved.**
- **Uptake in older age groups, particularly women, in Southern Derbyshire (County) should be improved.**

Table 4 – First Invites and Attendance by Gender and Age 2010-2015, by CCG

	Derbyshire Average		Erewash CCG					Hardwick CCG					North Derbyshire CCG					Southern Derbyshire CCG				
Total	% Invited	% Assessed	Invited	% Invited	Assessed	% Assessed		Invited	% Invited	Assessed	% Assessed		Invited	% Invited	Assessed	% Assessed		Invited	% Invited	Assessed	% Assessed	
Females	57%	64%	10,938	68%	6,500	59%	▼	12,126	73%	7,202	59%	▼	33,661	64%	22,036	65%	▲	15,533	38%	10,568	68%	▲
Males	69%	60%	12,265	77%	7,041	57%	▼	13,040	84%	7,203	55%	▼	37,213	74%	22,609	61%	▲	19,948	51%	12,384	62%	▲
F 40-44	34%	40%	1626	55%	462	28%	▼	1516	50%	553	36%	▼	2873	33%	1285	45%	▲	1466	19%	702	48%	▲
F 45-49	41%	49%	1863	57%	814	44%	▼	2042	64%	947	46%		4515	47%	2259	50%		1660	20%	872	53%	▲
F 50-54	54%	55%	1817	61%	949	52%		2254	76%	1168	52%		5999	65%	3281	55%		2000	28%	1206	60%	▲
F 55-59	66%	63%	1692	75%	1062	63%		2028	86%	1169	58%	▼	5924	75%	3734	63%		2426	42%	1584	65%	
F 60-64	74%	73%	1519	81%	1105	73%		1599	86%	1120	70%		5283	80%	3884	74%		2824	58%	2054	73%	
F 65-69	78%	80%	1458	85%	1225	84%	▲	1519	86%	1215	80%		5072	84%	4089	81%		2881	65%	2239	78%	▼
F 70-74	83%	87%	963	84%	883	92%	▲	1168	88%	1030	88%		3995	87%	3504	88%		2276	74%	1911	84%	▼
M 40-44	48%	35%	2012	63%	602	30%	▼	2190	75%	734	34%		4516	52%	1628	36%		2005	27%	806	40%	▲
M 45-49	64%	45%	2558	78%	1100	43%		2835	85%	1124	40%	▼	7141	72%	3327	47%	▲	2985	38%	1356	45%	
M 50-54	72%	53%	2526	81%	1381	55%		2553	89%	1289	50%	▼	7302	77%	3892	53%		3906	54%	2106	54%	
M 55-59	77%	62%	1858	83%	1197	64%		2001	89%	1195	60%		6111	81%	3823	63%		3416	63%	2061	60%	
M 60-64	79%	72%	1439	82%	1071	74%		1433	85%	1018	71%		4825	84%	3546	73%		2886	68%	1972	68%	▼
M 65-69	79%	82%	1108	79%	944	85%		1175	81%	999	85%		4209	84%	3461	82%		2758	72%	2208	80%	
M 70-74	80%	95%	764	83%	746	98%	▲	853	79%	844	99%	▲	3109	84%	2932	94%		1992	74%	1875	94%	

Males Compared to Females within the CCG:	Significantly Lower	Significantly Higher
CCG Uptake Compared to Derbyshire Uptake	Significantly Lower ▼	Significantly Higher ▲

A white gap between Invited and Uptake represents higher percentage of invites attended, no gap represents lower percentage of invites attended

Figure 6

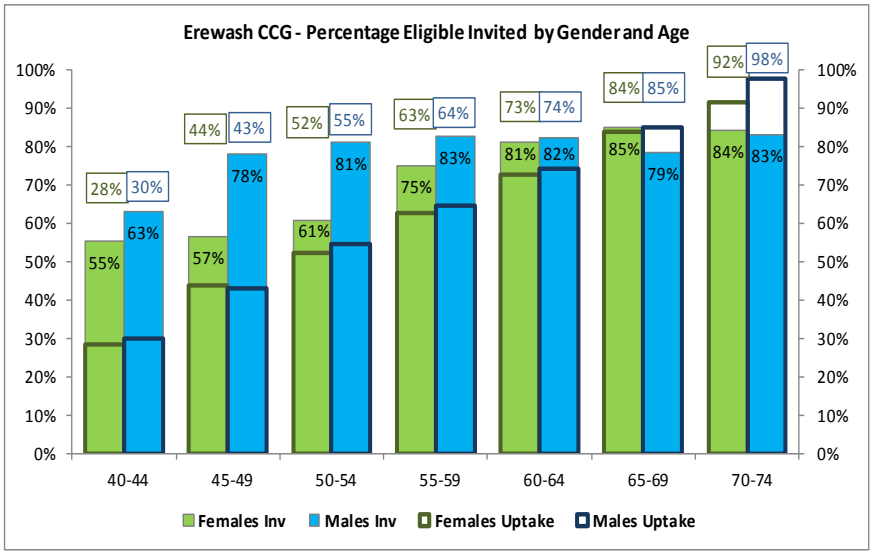


Figure 7

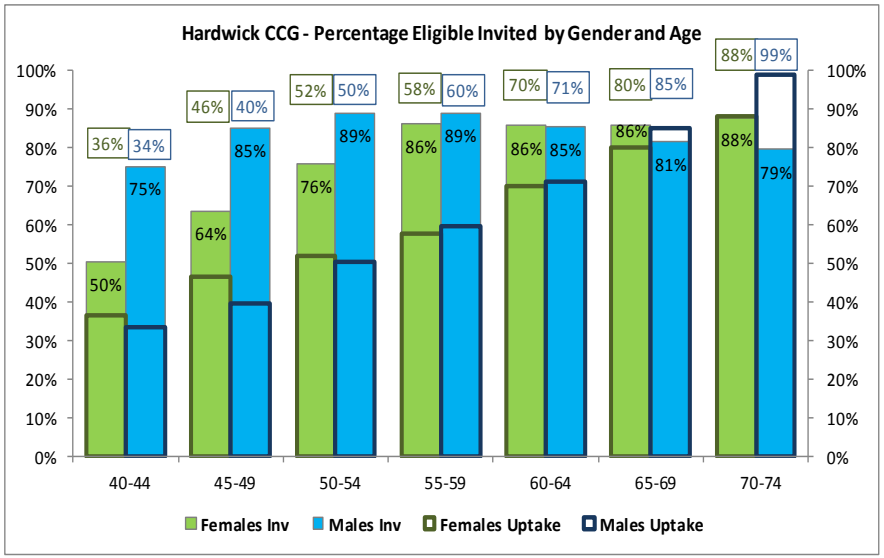


Figure 8

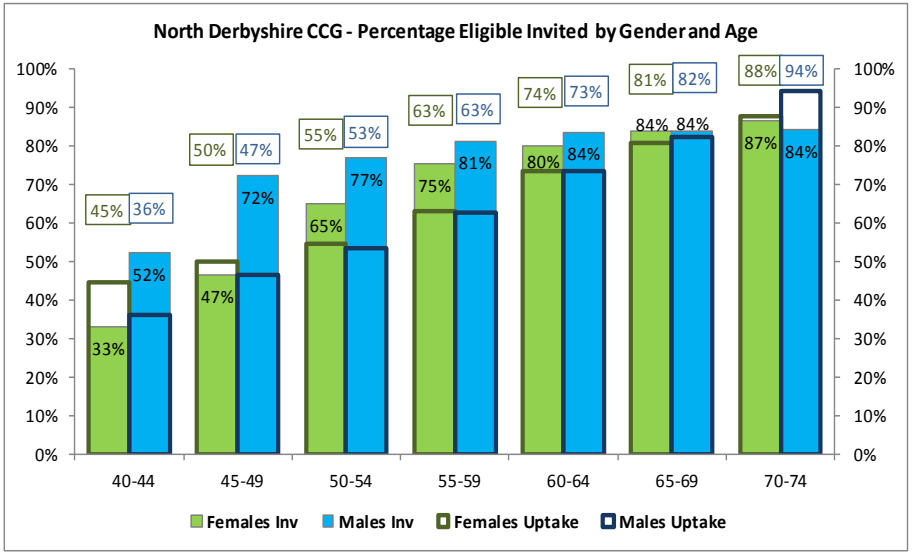
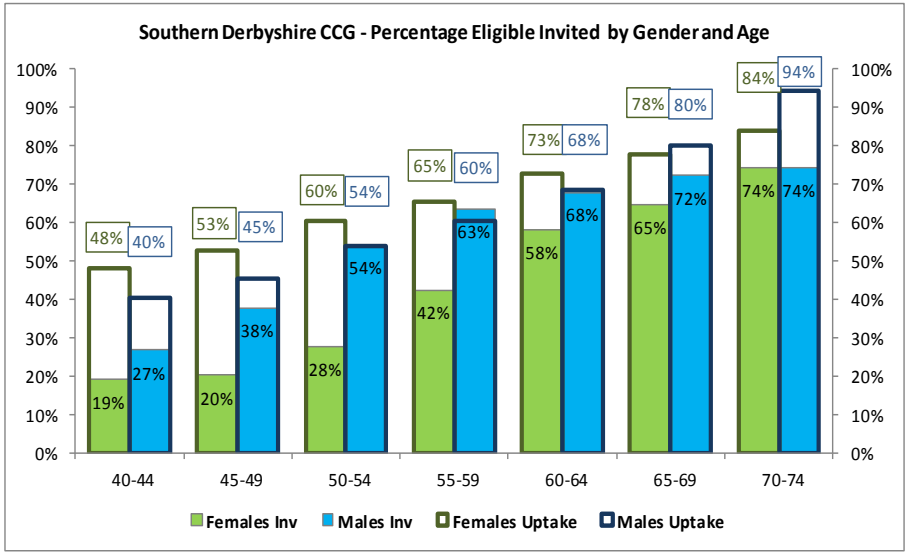


Figure 9



4.4.5 Eligible Population - Ethnicity

Derbyshire County has a low ethnic minority group population overall, with 95.8% classified as White British compared to 79.8% in England[12]. Unfortunately the completeness of ethnicity coding on practice systems has been poor historically, and ethnicity is not coded for 23% of the eligible population (**Table 5,** Columns A and B, Code ZZ). The number classified as 'Any other white background' and 'Any other ethnic group', are higher than would be expected when compared with the estimated eligible population using Census 2011 figures for Derbyshire (Column D).

Therefore, in order to estimate the numbers within each ethnic group, the Census percentage has been applied to the unrecorded figure and added in to each group (Column F).

Based on the estimates, there are approximately 1,200 eligible people in the Asian group, with the largest percentage being Indian. Approximately 950 are classified as White Irish, 620 as Black Caribbean/African/Other and 400 as Chinese. However, these may be underestimated due to the higher than expected numbers coded as 'Any other ethnic group'.

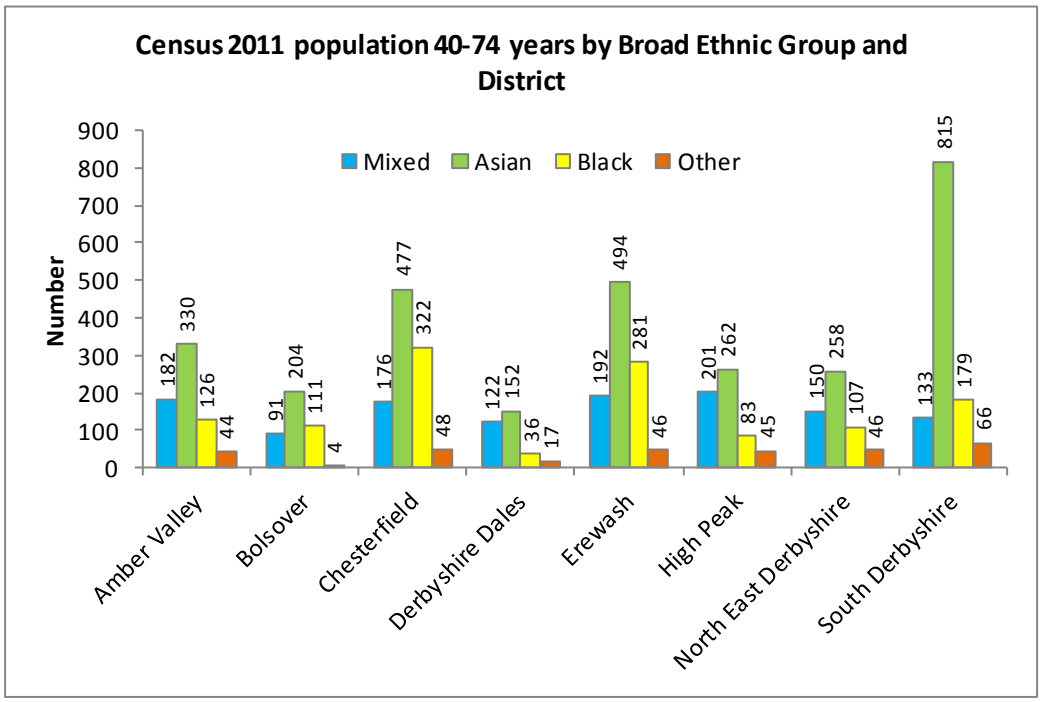
Total population aged 40-74 Census 2011 figures show that South Derbyshire has the largest Asian population, and Chesterfield and Erewash the highest Black population (**Figure 10**).

Table 5 - Baseline Eligible Population by Ethnic Group

Ethnic Group	Eligible Population 40-74 years (A)	% of Eligible 40-74 years (B)	% of Eligible (with Ethnic Group Recorded C)	Census 2011 Estimated Eligible 40-74 years (D)	Census 2011 % 40-74 years (E)	Estimated Total Eligible Population (F)
A - British	166,767	67.6%	92.6%	237527	96.90%	231358
B - Irish	582	0.2%	0.3%	1342	0.50%	947
C - Any other white background	8,267	3.4%	4.6%	2333	1.00%	8901
D - White and Black Caribbean	122	0.0%	0.1%	359	0.10%	220
E - White and Black African	71	0.0%	0.0%	77	0.00%	92
F - White and Asian	109	0.0%	0.1%	225	0.10%	170
G - Any other mixed background	141	0.1%	0.1%	194	0.10%	194
H - Indian	472	0.2%	0.3%	1039	0.40%	755
J - Pakistani	48	0.0%	0.0%	173	0.10%	95
K - Bangladeshi	19	0.0%	0.0%	18	0.00%	24
L - Any other Asian background	227	0.1%	0.1%	397	0.20%	335
M - Caribbean	148	0.1%	0.1%	490	0.20%	281
N - African	148	0.1%	0.1%	263	0.10%	220
P - Any other black background	95	0.0%	0.1%	100	0.00%	122
R - Chinese	290	0.1%	0.2%	423	0.20%	405
S - Any other ethnic group	2,596	1.1%	1.4%	216	0.10%	2655
Z - Not stated (High level code)	10,198	4.1%				
ZZ - No Code Recorded/Unmappe	56,472	22.9%				

[12] Census 2011, Derbyshire Observatory, http://observatory.derbyshire.gov.uk/IAS/custom/pages/people/census/population/ethnicity.aspx

Figure 10



4.4.6 Access and Uptake – Ethnicity

Section 4.4.5 highlighted that Derbyshire has a low percentage of the population in minority ethnic groups, and that data quality of ethnicity coding was not reliable.

Using the data as it is coded (i.e. including unmapped) shows that a significantly higher percentage of the eligible population in the White British and 'Any other white' groups have been offered an invite compared to the average. These groups also represent the highest proportions of the eligible population; however, numbers offered are still higher than expected by applying that proportion to the total offers (**Table 6**).

The percentage of the eligible 'Any other Asian' and Chinese populations invited was significantly lower than the average. The lowest proportion of offers was in those groups with no ethnicity stated or coded. This could highlight the importance of coding if lack of this data has an impact on calculation of risk.

Uptake of offer was significantly higher in White British and Irish, White Black Caribbean and White Asian, Indian and Caribbean groups.

Only half of those classified as African and 'Any other Asian', and a third classified as 'Any other ethnic group' attended a health check.

Whilst overall population numbers are small, based on the needs profile it should be ensured that levels of offer and uptake for minority ethnic groups are at least equal if not above the average.

Table 6 – First Invites and Attendance by Ethnic Group 2010-2015

Ethnic Group	Invited	% Invited of Eligible Recorded	Expected Invited Based on % of Eligible Population	Assessed	% Assessed of Invited	Expected Assessed Based on % of Eligible Population
A - British	113307	68% ▲	104562	82558	73% ▲	64567
B - Irish	369	63%	365	279	76% ▲	225
C - Any other white background	6033	73% ▲	5183	3476	58% ▼	3201
D - White and Black Caribbean	73	60%	76	55	75% ▲	47
E - White and Black African	40	56%	45	22	55%	27
F - White and Asian	59	54%	68	45	76% ▲	42
G - Any other mixed background	88	62%	88	61	69%	55
H - Indian	291	62%	296	220	76% ▲	183
J - Pakistani	35	73%	30	16	46%	19
K - Bangladeshi	14	74%	12	9	64%	7
L - Any other Asian background	119	52% ▼	142	62	52% ▼	88
M - Caribbean	93	63%	93	79	85% ▲	57
N - African	81	55%	93	39	48% ▼	57
P - Any other black background	52	55%	60	38	73%	37
R - Chinese	159	55% ▼	182	96	60%	112
S - Any other ethnic group	1782	69% ▲	1628	620	35% ▼	1005
Z - Not stated (High level code)	4443	44% ▼	6394	2646	60% ▼	3948
ZZ - No Code Recorded/Unmapped	27686	49% ▼	35407	5222	19% ▼	21864
Total	154724	63%	154724	95543	62%	95543
Comparison to average	Signficantly Lower: ▼	Signficantly Higher: ▲				

4.4.7 Eligible Population - Deprivation Quintile

Data have been assigned to a 'deprivation quintile' based on the residential Lower Super Output Area (LSOA) using the Index of Multiple Deprivation (IMD) 2010[13]. LSOAs are geographical areas with a population of 1,000 to 3,000 residents. Each LSOA has an individual overall IMD score which denotes the level of deprivation within the area based on factors including income, employment, education, health, housing, and environment. All of the LSOAs in England are then grouped into quintiles based on their IMD score, with the most deprived LSOAs in the top fifth (Quintile 1) and the least deprived LSOAs in the bottom fifth (Quintile 5).

Table 7 shows two thirds of the eligible population are in Quintiles 3 to 5 across Derbyshire, but there is wide variation between the CCGs.

This highlights the overall differences in deprivation between geographical areas and links to the population needs profile in Section 4.2. In Hardwick CCG, 66% of the eligible population is in the most deprived quintiles, compared to 20% in Southern Derbyshire CCG (County).

[13]NHS Health Check programme: literature review, PHE, Nov 2014
https://www.gov.uk/government/consultations/nhs-health-check-programme-priorities-for-research

Table 7 - Baseline Eligible Population by Deprivation Quintile

	Derbyshire County		Erewash CCG		Hardwick CCG		North Derbyshire CCG		Southern Derbyshire CCG	
Total	246,772	%	32,080	%	32,072	%	102,652	%	79,968	%
Quintile 1	27,989	11%	2,854	9%	10,009	31%	11,680	11%	3,446	4%
Quintile 2	49,390	20%	7,798	24%	11,090	35%	17,730	17%	12,772	16%
Quintile 3	62,241	25%	7,426	23%	7,017	22%	22,051	21%	25,747	32%
Quintile 4	62,460	25%	7,594	24%	2,788	9%	30,332	30%	21,746	27%
Quintile 5	39,189	16%	6,170	19%	781	2%	17,794	17%	14,444	18%
Unmapped	5,503	2%	238	1%	387	1%	3,065	3%	1,813	2%

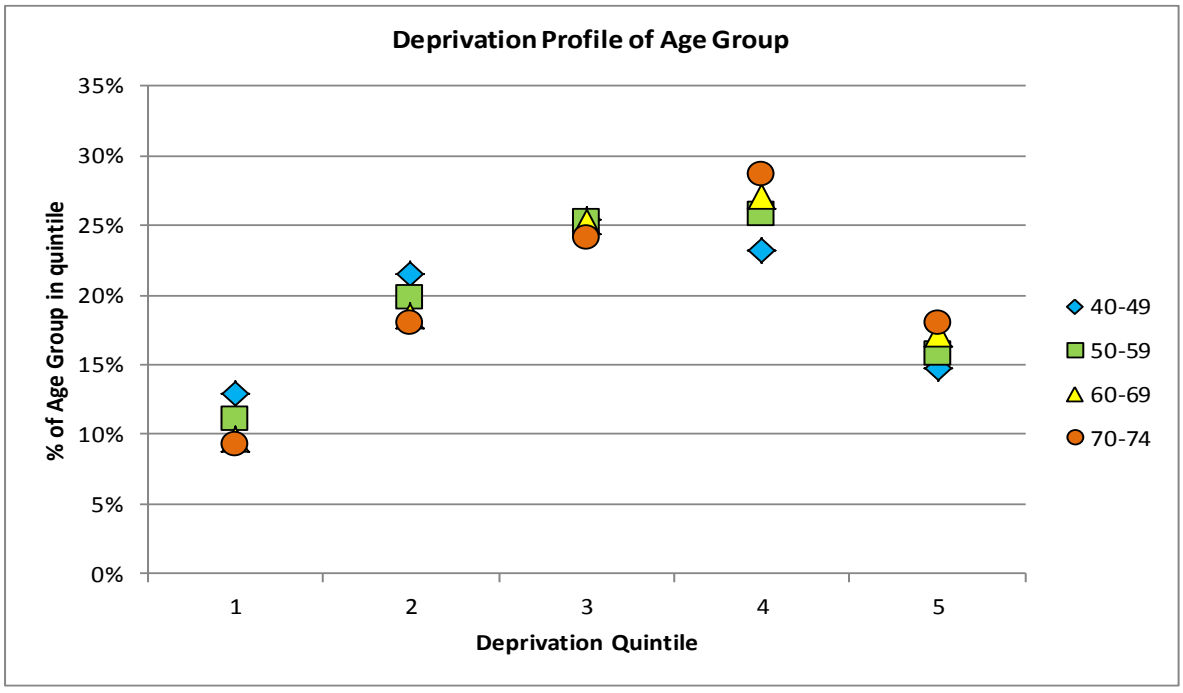
Significantly Higher Compared to Derbyshire

There is also a difference in deprivation profile by age group, which 'reverses' with age from most deprived to least deprived (**Figure 11**).

- 13% of all eligible 40-49 year olds are in the most deprived quintile, compared to 9% of 70-74 year olds.
- 18% of 70-74 year olds are in Quintile 5 compared to 15% of 40-49 year olds.

This could be a reflection of CVD already prevalent in the older age groups in more deprived areas.

Figure 11



4.4.8 Access and Uptake – Deprivation Quintile

As would be anticipated from a targeted approach starting with highest risk populations in the more deprived CCGs, the percentage of the eligible population that has been offered a health check is significantly higher in the most deprived quintiles compared to the average, and is highest in the 20% most deprived LSOA's. However, in line with the literature this is not reflected in uptake of invitation (**Table 8, Figure 12**).

4.4.9 First Offer – Deprivation Quintile

- 74% of the population in Quintile 1 has been offered a first invite across the 5 years compared to the average of 63%.
- Overall those in Quintile 1 are nearly twice as likely to have been invited compared to those in Quintile 5 (OR 1.85, 95% CI 1.79-1.91, p<0.001).

4.4.10 Uptake – Deprivation Quintile

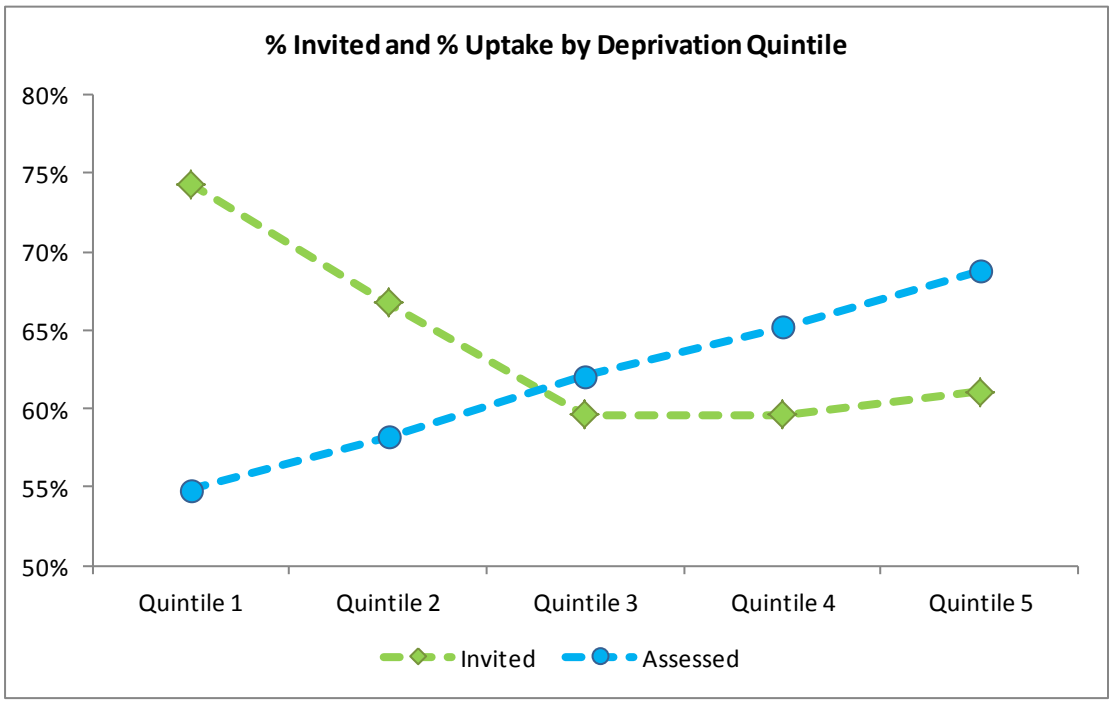
- Overall uptake of offer is significantly lower than average in Quintiles 1 and 2 at 55% and 58% respectively.
- Although twice as likely to be offered, those in Quintile 1 are half as likely to attend a health check in compared to Quintile 5 (OR 0.55, 95% CI 0.53- 0.57, p<0.001).
- The percentage uptake significantly decreases in line with deprivation and is highest in Quintile 5.

Table 8 - First Invites and Attendance by Deprivation Quintile 2010-2015

Total	Eligible	Invited	% of Eligible Invited	95% CI	Assessed	% of Invited Assessed	95% CI
Quintile 1	27,989	20,806	74% ▲	73.8-74.8	11409	55% ▼	54.2-55.5
Quintile 2	49,390	32,953	67% ▲	66.3-67.1	19185	58% ▼	57.7-58.8
Quintile 3	62,241	37,108	60% ▼	59.2-60.0	23036	62%	61.6-62.6
Quintile 4	62,460	37,223	60% ▼	59.2-60.0	24266	65% ▲	64.7-65.7
Quintile 5	39,189	23,931	61% ▼	60.6-61.5	16467	69% ▲	68.2-69.4
Unmapped	5,503	2,703	49% ▼	47.8-50.4	1180	44% ▼	41.8-45.5
Total	246,772	154,724	63%	62.5-62.9	95543	62%	61.5-62.0

Comparison to average Signficantly Lower: ▼ Signficantly Higher: ▲

Figure 12



4.4.11 First Offer – Deprivation and Gender

- The percentage of offers for both males and females is significantly higher than the average in the most deprived quintiles compared to the least, but the percentage of females in Quintiles 1 and 2 offered an invite is significantly lower compared to that of males (**Table 9**).

4.4.12 Uptake – Deprivation and Gender

- Uptake for both males and females is significantly lower than the average in the most deprived quintiles compared to the least, and they are 30% less likely to attend (Female OR 0.67, 95% CI 0.64-0.71, Male OR 0.70, 95% CI 0.67-0.74,p<0.001).
- Uptake is significantly lower in males from Quintile 1 and 2 compared to females.
- Within Quintile 1 and 2, uptake is significantly lower in both men and women aged 40-54 years in comparison to the all-age uptake within the quintile (**Table 10**).
- Although uptake is higher in the older age groups within the quintiles, it is still lower than their counterparts in Quintile 5.

Table 9 - First Invites and Attendance by Deprivation Quintile and Gender 2010-2015

Total	Eligible	Invited	% of Eligible Invited	95% CI	Assessed	% of Invited Assessed	95% CI
F - Quintile 1	14,240	10,101	71% ▲	70.2-71.7	5830	58% ▼	56.8-58.7
F - Quintile 2	24,877	15,586	63% ▲	62.0-63.3	9427	60% ▼	59.7-61.2
F - Quintile 3	31,934	16,998	53% ▼	52.7-53.8	10982	65%	63.9-65.3
F - Quintile 4	32,293	17,326	54% ▼	53.1-54.2	11659	67% ▲	66.6-68.0
F - Quintile 5	20,436	10,975	54% ▼	53.0-54.4	7860	72% ▲	70.8-72.5
F - Unmapped	2,827	1,272	45% ▼	43.2-46.8	548	43% ▼	40.4-45.8
F - Total	126,607	72,258	57%	56.8-57.3	46306	64%	63.7-64.4
M - Quintile 1	13,749	10,705	78% ▲	77.2-78.5	5579	52% ▼	51.2-53.1
M - Quintile 2	24,513	17,367	71% ▲	70.3-71.4	9758	56% ▼	55.4-56.9
M - Quintile 3	30,307	20,110	66% ▼	65.8-66.9	12054	60%	59.3-60.6
M - Quintile 4	30,167	19,897	66% ▼	65.4-66.5	12607	63% ▲	62.7-64.0
M - Quintile 5	18,753	12,956	69%	68.4-69.7	8607	66% ▲	65.6-67.2
M - Unmapped	2,676	1,431	53% ▼	51.6-55.4	632	44% ▼	41.6-46.8
M - Total	120,165	82,466	69%	68.4-68.9	49237	60%	59.4-60.0

Comparison to average Signficantly Lower: ▼ Signficantly Higher: ▲

Table 10 - First Invites and Attendance by Deprivation Quintile, Gender and Age 2010-2015

Total	Quintile 1 invited	% of Eligible Invited	Quintile 1 Assessed	% of Invited Assessed	Quintile 2 Invited	% of Eligible Invited	Quintile 2 Assessed	% of Invited Assessed	Quintile 5 % Assessed
F 40-44	1572	53%	580	37% ▼	2000	42%	776	39% ▼	48%
F 45-49	1965	64%	943	48% ▼	2497	50%	1167	47% ▼	55%
F 50-54	1861	74%	991	53% ▼	2791	62%	1461	52% ▼	60%
F 55-59	1606	81%	934	58%	2561	73%	1563	61%	68%
F 60-64	1270	82%	887	70% ▲	2165	79%	1519	70% ▲	76%
F 65-69	1025	81%	809	79% ▲	2046	81%	1590	78% ▲	85%
F 70-74	802	86%	686	86% ▲	1526	83%	1351	89% ▲	90%
M 40-44	1944	67%	625	32% ▼	2777	56%	923	33% ▼	40%
M 45-49	2459	79%	1001	41% ▼	3603	69%	1506	42% ▼	50%
M 50-54	2063	82%	998	48% ▼	3494	75%	1817	52% ▼	57%
M 55-59	1607	82%	958	60% ▲	2584	77%	1510	58%	66%
M 60-64	1131	83%	754	67% ▲	2055	80%	1487	72% ▲	76%
M 65-69	871	80%	657	75% ▲	1680	77%	1395	83% ▲	87%
M 70-74	630	80%	586	93% ▲	1174	79%	1120	95% ▲	99%

Comparison to average Signficantly Lower: ▼ Signficantly Higher: ▲

4.4.13 Access and Uptake – Deprivation Quintile by CCG

- Within Erewash, Hardwick and North Derbyshire CCGs the percentage uptake in Quintile 1 is significantly lower than the average uptake within each CCG.
- In Erewash CCG, uptake is also significantly lower than the Derbyshire rate in Quintiles 1 to 3.
- Southern Derbyshire has invited a much lower percentage of the eligible population compared to the other CCGs, but uptake rates are significantly higher than Derbyshire in Quintiles 1 to 4.

Table 11 - First Invites and Attendance by Deprivation Quintile, by CCG 2010-2015

	Derbyshire Average		Erewash CCG				Hardwick CCG				North Derbyshire CCG				Southern Derbyshire CCG			
Total	% Invited	% Assessed	Invited	% Invited	Assessed	% Assessed	Invited	% Invited	Assessed	% Assessed	Invited	% Invited	Assessed	% Assessed	Invited	% Invited	Assessed	% Assessed
Quintile 1	74%	55%	2,236	78%	1,137	51% ▼	8,144	81%	4,432	54%	8,944	77%	4,905	55%	1,482	43%	935	63% ▲
Quintile 2	67%	58%	5,855	75%	3,032	52% ▼	8,608	78%	4,868	57% ▼	12,879	73%	7,846	61% ▲	5,611	44%	3,439	61% ▲
Quintile 3	60%	62%	5,433	73%	3164	58% ▼	5433	77%	3197	59% ▼	14669	67%	9209	63%	11573	45%	7466	65% ▲
Quintile 4	60%	65%	5,391	71%	3466	64%	2053	74%	1310	64%	21009	69%	13534	64%	8770	40%	5956	68% ▲
Quintile 5	61%	69%	4,147	67%	2653	64% ▼	636	81%	434	68%	12233	69%	8544	70%	6915	48%	4836	70%
Unmapped	49%	44%	141	59%	89	63% ▲	292	75%	164	56% ▲	1140	37%	607	53% ▲	1130	62%	320	28% ▼
Total	63%	62%	23,203	72%	13541	58% ▼	25166	78%	14405	57% ▼	70874	69%	44645	63% ▲	35481	44%	22952	65% ▲

Quintile Compared to Average within the CCG:	Significantly Lower	Significantly Higher
Quintile Compared to Derbyshire Quintile	Significantly Lower ▼	Significantly Higher ▲

Deprivation - Equity Analysis and Recommendations:-

- There appears to be a high level of equity in access (offers of invitation) based on population need by deprivation;
- There is inequity of uptake based on population need by deprivation which shows an inverse relationship between invitations offered and subsequent attendances for a health check;
- The relationship between lower uptake and deprivation is reflected in the CCGs that serve more deprived populations.
- **The uptake of offer in the most deprived areas needs to be improved for the health check programme to be equitable.**
- **The focus needs to be on attendance and should target those that have already been invited but have not taken up the offer.**
- **Uptake needs to be improved in the younger age groups and males in particular.**
- **Although uptake is higher in the older age groups it is still significantly lower in populations of the more deprived quintiles than in their counterparts in Quintile 5.**

4.4.14 Eligible Population Deprivation by Geography

In order to analyse population, access and uptake by geographical area, the data have been aggregated into Middle Super Output Areas (MSOAs) to create statistically robust numerators and denominators. MSOAs are geographical areas covering a minimum of 5,000 residents up to 15,000. Each MSOA has an individual overall IMD score which denotes the level of deprivation within the area based on factors including income, employment, education, health, housing, and environment. MSOAs can then be grouped into quintiles based on their IMD score, with the most deprived in the top fifth (Quintile 1) and the least deprived in the bottom fifth (Quintile 5).

Figure 13 shows that areas with a high eligible population and the most deprivation are located in Bolsover, Elmton-with-Creswell, Shirebrook, Holmbrook, Hollingwood and Inkersall, Lowgates and Woodthorpe, Rother, Grassmoor, Holmewood and Heath, Clay Cross, Stone Bench Ilkeston and Cotmanhay, and Alfreton and Somercotes.

4.4.15 Access and Uptake by Geography

Geographically, the percentage of offers varies widely from 9% to 90%, but this will be greatly affected by the length of time the programme has been running. The percentage uptake ranges from 48% to 86%.

There is no demonstrable relationship between offer and uptake: a high invitation rate does not necessarily equate to a high uptake rate.

This could be affected by several factors:-

- If practices send out a large cohort of invitations it would take longer to subsequently assess that cohort and uptake would be artificially lowered.

- This should not be the case for practices that have been running for a longer period, and uptake rates may have been affected by a focus on sending invitations during the initial stages without adequate follow up, or by poorer coding of data.
- However, as demonstrated in previous sections, uptake is also affected by the population demographics of an area.

Figure 14 shows the percentage uptake by MSOA against percentage of invitations sent.

For an equitable level of uptake, the areas in Figure 13 coloured red and orange (i.e. Deprivation Quintiles 1 and 2) should be coloured blue in Figure 14, indicating a higher than average attendance rate.

There are 22 Middle Super Output Areas (MSOA) that have a *significantly higher than average percentage of invitations offered, but a significantly lower than average percentage uptake. However:-*

- The percentage offered is high as they are in areas that have been running the programme for longer, but this is not reflected in the uptake rates;
- The majority of these areas are located in the 40% most deprived MSOAs (8 in Quintile 1 and 8 in Quintile 2).

A comparison against MSOAs that *also have a significantly higher than average percentage of invitations offered, but conversely have a significantly higher than average percentage uptake* shows they are largely located in lesser deprived areas (**Table 12**).

Access and Uptake by Geography - Equity Analysis and Recommendations:-

- The wide variation in the percentage uptake between geographical areas is likely to represent inequity of uptake within the programme;
- Whilst some of the variation will be due to the previously outlined organisational differences in service provision, it has also been demonstrated that differing population demographics has an impact.
- **Operational differences between areas with similar numbers of offers but contrasting uptake rates should be investigated.**
- **Focus should be placed on following up those invited during the initial stages of the programme that have not yet attended, particularly in the more deprived areas.**
- **Differences between geographical areas should be used to select areas on which to focus and approaches to service provision for different populations that could improve uptake rates.**

Figure 13

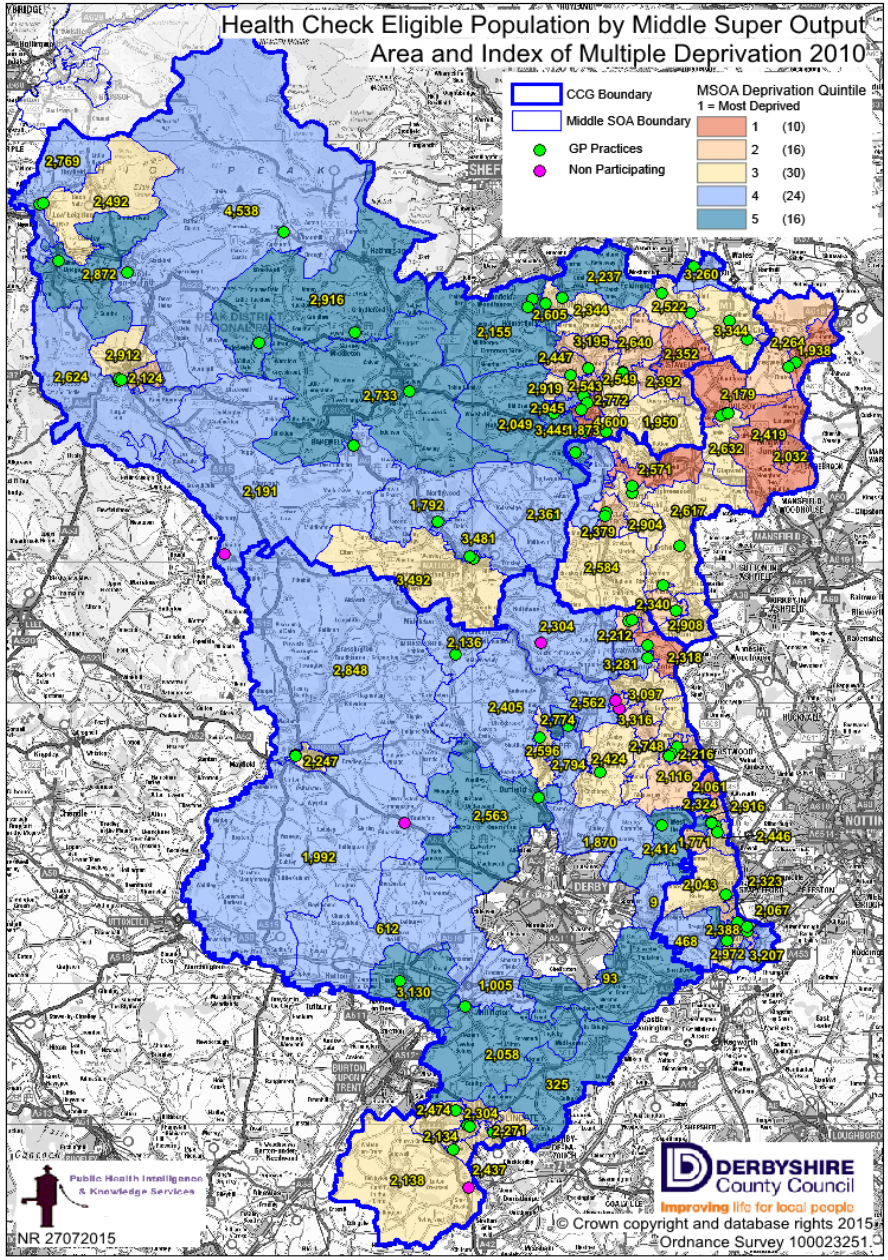


Figure 14

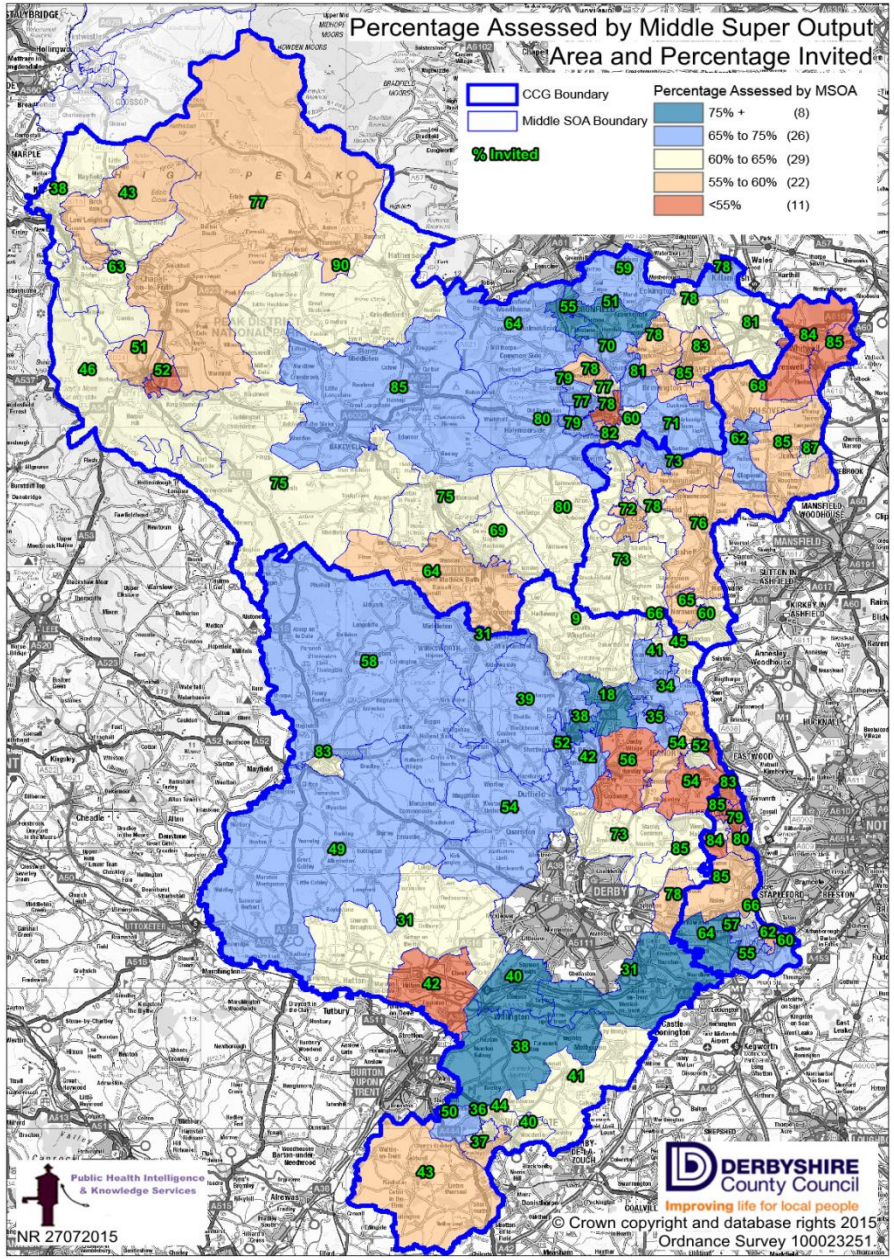


Table 12 – Comparison of MSOAs by Significance of Percentage Uptake

MSOAs with Signficantly Higher % Invites Offered and Signficantly Lower % Uptake								
LA	**Wards in MSOA Area**	**Quintile**	**Eligible**	**Invited**	**% Invited**	**Assessed**	**% Assessed**	**Assessed 95% CI**
Erewash	Cotmanhay, Ilkeston North	1	2061	1701	83%	821	48%	45.9-50.6
Erewash	Hallam Fields, Ilkeston Central, Little Hallam, Old Park	2	2916	2313	79%	1138	49%	47.2-51.2
Bolsover	Elmton-with-Creswell, Whitwell	1	1938	1642	85%	811	49%	47.0-51.8
Chesterfield	Brockwell, Holmebrook, St. Helen's, St. Leonard's	1	2772	2153	78%	1110	52%	49.4-53.7
Erewash	Abbotsford, Cotmanhay	4	2324	1982	85%	1061	54%	51.3-55.7
Erewash	Kirk Hallam	2	1771	1491	84%	809	54%	51.7-56.8
Bolsover	Clowne North, Elmton-with-Creswell, Whitwell	2	2264	1911	84%	1040	54%	52.2-56.6
Bolsover	Bolsover North West, Bolsover South, Bolsover West	1	2179	1480	68%	810	55%	52.2-57.3
Erewash	Draycott, Sandiacre North, Sandiacre South	3	2043	1746	85%	962	55%	52.8-57.4
Erewash	Hallam Fields, Little Hallam, Old Park	3	2446	1947	80%	1076	55%	53.0-57.5
Chesterfield	Barrow Hill & New Whittington, Brimington North, Hollingwood & Inkersall	2	2640	2062	78%	1150	56%	53.6-57.9
North East Derbyshire	Grassmoor, Holmewood & Heath, North Wingfield Central, Tupton	1	2571	1871	73%	1055	56%	54.1-58.6
Bolsover	Pleasley, Scarcliffe, Shirebrook East, Shirebrook South East	1	2419	2051	85%	1167	57%	54.7-59.0
Chesterfield	Hollingwood & Inkersall, Middlecroft & Poolsbrook	2	2392	2038	85%	1162	57%	54.9-59.2
Bolsover	Blackwell, Tibshelf	3	2617	2001	76%	1141	57%	54.8-59.2
Chesterfield	Lowgates & Woodthorpe, Middlecroft & Poolsbrook	1	2352	1962	83%	1126	57%	55.2-59.6
Chesterfield	Rother	1	1873	1527	82%	880	58%	55.1-60.1
High Peak	Chapel East, Chapel West, Hope Valley, Limestone Peak	4	4538	3478	77%	2035	59%	56.9-60.1
North East Derbyshire	Clay Cross North, Clay Cross South	2	2379	1709	72%	1004	59%	56.4-61.1
Chesterfield	Dunston, Moor	2	2447	1913	78%	1135	59%	57.1-61.5
North East Derbyshire	Pilsley & Morton, Shirland	3	2584	1877	73%	1119	60%	57.4-61.8
Chesterfield	Brockwell, Moor, St. Helen's	2	2543	1964	77%	1172	60%	57.5-61.8
MSOAs with Signficantly Higher % Invites Offered and Signficantly Higher % Uptake								
Chesterfield	Brimington North, Brimington South	3	2549	2053	81%	1336	65%	63.0-67.1
Chesterfield	Linacre, Loundsley Green	3	2919	2295	79%	1497	65%	63.3-67.2
North East Derbyshire	Grassmoor, Sutton	3	1950	1392	71%	911	65%	62.9-67.9
Chesterfield	Brockwell, Holmebrook, West	4	2945	2277	77%	1535	67%	65.5-69.3
North East Derbyshire	Killamarsh East, Killamarsh West	4	3260	2538	78%	1737	68%	66.6-70.2
Chesterfield	Walton, West	5	3445	2707	79%	1876	69%	67.5-71.0
North East Derbyshire	Brampton & Walton, Wingerworth	5	2049	1641	80%	1139	69%	67.1-71.6
Derbyshire Dales	Bakewell, Calver, Chatsworth, Litton & Longstone	5	2733	2322	85%	1644	71%	68.9-72.6
Chesterfield	Barrow Hill & New Whittington, Old Whittington	2	3195	2239	70%	1588	71%	69.0-72.8

4.5 NHS Health Check in Derbyshire - Outcomes of Attendance

This section of the equity profile analyses the recorded outcomes for those that attended a health check across the 5 years. Outcomes of a health check can range from being given advice or a brief intervention, onwards referral to preventative lifestyle services, prescription of statins/anti-hypertensives or diagnosis of cardiovascular disease. Outcomes are analysed by risk factor, gender, age and deprivation.

As previously, the analysis of outcomes is based on *recorded* data. The quality of data recording at the beginning of the programme may have an impact for areas that have been running for longer, and any results are dependent upon the correct templates and codes being used during the health check. The impact of recording quality is not known, and this should be noted when interpreting the data, but as an area for further investigation, rather than the sole reason for any differences.

It should also be noted that those attending may have multiple risk factors, which will influence the number and level of interventions and/or referrals considered appropriate for each individual and will account for some of the variation.

Two available sources have been identified on which to base a comparison of the Derbyshire analysis:-

- The Health Checks Ready Reckoner is a tool that applies national figures to local populations to estimate numbers of potential diagnoses and lifestyle outcomes as a result of having a health check[14]. **Table 13** shows the estimated numbers **per year** for Derbyshire based on 20,000 checks per year (average assessed in Derbyshire across the 5 years of data ~19,000).

- The study referenced in Section 3.1, Table 1, provided percentages and rates of CVD risk factors of those attending a health check, which have been applied to the Derbyshire eligible population to estimate the **expected numbers** with risk factors **for the total assessed** across the 5 years of data (**Table 14**).

When the expected numbers from the study are averaged per year it shows the estimated total numbers are comparable between the two sources (e.g. Table 13 Obese = 4,675, Table 14 Obese Average per year = 4,208). The estimates in Table 14 are slightly lower but do not include the 95% CI, therefore there is a fairly robust comparison that can be made between the recorded outcomes for Derbyshire against the numbers that would be expected based on the two sources. The following sections include this as part of the equity analysis.

[14] www.healthcheck.nhs.uk/commissioners_and_healthcare_professionals/national_resources_and_training_development_tools/ready_reckoner_tools/

Table 13 – Ready Reckoner Outcomes for Derbyshire

Prevalence and Diagnoses		Outcomes Attributable to a Health Check
4,675 Obese [i]		1,868 take up weight loss programme [ii]
13,491 Inactive [iii]		6,544 given exercise brief intervention [iv]
4,847 Smokers [v]		470 referred to stop smoking services [vi]
2,119 requiring statins [vii]		1,060 prescribed statins [viii]
5,872 single high blood pressure measurement [ix]		672 prescribed anti-hypertensives [x]
428 diagnosed with IGR (Impaired Glucose Regulation) [xi]	177 diagnosed with diabetes [xii]	466 diagnosed with CKD (Chronic Kidney Disease) [xiii]

i Average obesity prevalence 21.4% males and 22.7% females
ii 85% uptake of weight loss programme, 47% attributable to a health check
iii Inactivity prevalence increasing with age from 54% to 75% in men and 63% to 80% in women
iv 77% uptake of brief intervention, 63% attributable to a health check
v Smoking prevalence decreasing from 31% to 16% in men and 24% to 12% in women
vi 19% referred to smoking cessation, 51% attributable to a health check
vii Require statins increasing with age from 12% to 83% in men and 4% to 16% in women
viii 100% prescribed statins, 50% attributable to a health check
ix SBP >140 Increasing with age from 23% to 47% in men and 11% to 49% in women
x Prescribed anti-hypertensives increasing with age from 5% to 44% in men and 3% to 25% in women, 24% attributable to check
xi 2% of both men and women diagnosed with IGR, 90% attributable to a health check
xii 2% of men and 0.9% of women diagnosed with diabetes, 60% attributable to a health check
xiii Diagnosed with CKD increasing with age from 1% to 10% in men and 2% to 16% in women, 54% attributable to a health check

Table 14 – Expected Numbers of Cardiovascular Risk Factors for Patients Attending a Health Check (based on Forster et al, 2014, see Section 3.1, Table 1)

	Assessed	Obese	Smoker	Hypertensive	Elevated Cholesterol	Diabetes
Total	94,273	21,041	17,302	28,521	60,197	519
Females	45,903	10,359	7,382	11,361	30,643	
F 40-54	16,873	4,117	3,172	2,818	9,061	51
F 55-64	17,627	3,896	2,644	4,936	13,749	71
F 65-74	11,403	2,155	1,289	4,436	9,305	57
Males	48,370	10,682	9,920	17,160	29,554	
M 40-54	22,999	5,612	5,451	6,900	14,052	138
M 55-64	16,411	3,578	3,184	6,367	10,798	131
M 65-74	8,960	1,505	1,272	3,933	10,651	72
Average per year (Total)		4,208	3,460	5,704	12,039	104

4.6 Recorded Risk Factors and Outcomes in Derbyshire for Health Check Attendances

4.6.1 Assessed as Overweight and Obese

4.6.1.1 Overweight and Obese - Age and Gender

The percentage of men assessed and recorded as overweight is significantly higher than for women, and increases with age in both. Nearly half of all men assessed were recorded as being overweight.

The reverse is shown in the percentage assessed and recorded as obese, with younger men and women significantly

higher compared to the older age groups. This is line with the known prevalence of obesity decreasing with age. There is no significant difference by age between men and women for obesity, with the exception of a significantly higher percentage of women than men aged 65-74 years.

The percentage of 40-49 year olds recorded as obese in Derbyshire is considerably higher than the estimates in both the ready reckoner tool and the study sample (**Table 15**).

This could reflect either or both:-

- An actual higher prevalence of obesity in younger age groups in Derbyshire;
- The targeted approach adopted in Derbyshire means that a higher percentage of those at risk and therefore likely to be obese have been invited first and had a health check.

Table 15 –Assessed as Overweight or Obese by Age and Gender

Overweight = BMI 25+ minus those recorded as obese Obese = BMI 30+/27.5+ in Asian groups

	Assessed	Assessed Overweight	% Assessed as Overweight		Assessed Obese	% Assessed as Obese		Estimated Obesity Prevalence[i]	Expected Assessed Obese[ii]	Ratio Actual Obese to Expected	Estimated Uptake of Obese[iii]	Average Overall Uptake Rate
Total	94,273	39,073	41.4%		22727	24.1%						
Females	45,903	16,225	35.3%	▼	11047	24.1%		22.6%	10359	1.07	65%	64%
Males	48,370	22,848	47.2%	▲	11680	24.1%		22.1%	10682	1.09	62%	60%
F 40-44	4,401	1,351	30.7%		1179	26.8%	▲	21.9%	962	1.23	49%	40%
F 45-49	5,303	1,734	32.7%		1505	28.4%	▲	23.1%	1226	1.23	57%	49%
F 50-54	7,169	2,509	35.0%		1857	25.9%	▲	24.4%	1752	1.06	59%	55%
F 55-59	8,356	2,954	35.4%		2013	24.1%		23.5%	1964	1.02	67%	63%
F 60-64	9,271	3,413	36.8%	▲	2105	22.7%	▼	22.5%	2090	1.01	78%	73%
F 65-69	7,982	2,978	37.3%	▲	1675	21.0%	▼	21.5%	1715	0.98	81%	80%
F 70-74	3,421	1,286	37.6%	▲	713	20.8%	▼	21.7%	743	0.96	90%	87%
M 40-44	5,951	2,657	44.6%	▼	1693	28.4%	▲	22.6%	1345	1.26	47%	35%
M 45-49	7,938	3,695	46.5%		2182	27.5%	▲	23.1%	1835	1.19	55%	45%
M 50-54	9,110	4,415	48.5%		2327	25.5%	▲	24.3%	2210	1.05	59%	53%
M 55-59	8,511	4,045	47.5%		2114	24.8%		23.4%	1991	1.06	71%	62%
M 60-64	7,900	3,733	47.3%		1744	22.1%	▼	21.4%	1687	1.03	80%	72%
M 65-69	6,400	3,064	47.9%		1219	19.0%	▼	18.7%	1199	1.02	90%	82%
M 70-74	2,560	1,239	48.4%		401	15.7%	▼	16.7%	427	0.94	92%	95%

i Ready Reckoner Tool ii Expected calculated by applying prevalence estimates to total assessed

iii Estimated Uptake based on Actual Assessed/Estimated Invites Obese (by applying expected prevalence)

Female/Male Significance is compared to the Average, Age Group is compared to Gender Average

4.6.1.2 Overweight and Obese - Deprivation

In both men and women the percentage overweight actually increases as deprivation decreases; the opposite relationship to that of obesity (**Table 16**). Men are significantly higher than women across all quintiles.

Conversely, the percentage assessed as obese is significantly higher than average in the most deprived quintiles in both men and women, and is significantly higher in females in Quintile 1 compared to males in Quintile 1, in line with the literature. A third of females in Quintile 1 were assessed as obese compared to the average of 24% and 17% in the least deprived quintile.

It is not possible to produce a robust estimate of the percentage invited that were obese by deprivation to compare equity of uptake, however, Section 4.4.8 demonstrated a significantly lower uptake rate in the most deprived quintiles.

Table 16 –Assessed as Overweight or Obese by Deprivation quintile

	Assessed	Assessed Overweight	% Assessed as Overweight	Assessed Obese	% Assessed as Obese
Total	94,273	39,073	41.4%	22727	24.1%
Deprivation Quintile 1	10,915	4,121	37.8% ▼	3466	31.8% ▲
Deprivation Quintile 2	18,789	7,699	41.0%	5305	28.2% ▲
Deprivation Quintile 3	22,844	9,665	42.3%	5531	24.2%
Deprivation Quintile 4	24,095	10,142	42.1%	5099	21.2% ▼
Deprivation Quintile 5	16,444	6,924	42.1%	3038	18.5% ▼
F Quintile 1	5,601	1,865	33.3%	1870	33.4% ▲
F Quintile 2	9,311	3,331	35.8%	2677	28.8% ▲
F Quintile 3	10,921	3,943	36.1%	2658	24.3%
F Quintile 4	11,641	4,124	35.4%	2341	20.1% ▼
F Quintile 5	7,873	2,763	35.1%	1366	17.4% ▼
M Quintile 1	5,314	2,256	42.5% ▼	1596	30.0% ▲
M Quintile 2	9,478	4,368	46.1%	2628	27.7% ▲
M Quintile 3	11,923	5,722	48.0%	2873	24.1%
M Quintile 4	12,454	6,018	48.3%	2758	22.1% ▼
M Quintile 5	8,571	4,161	48.5%	1672	19.5% ▼

Female/Male Significance is compared to gender average

Overweight and Obese Population Uptake - Equity Analysis and Recommendations:-

- The data suggest that there is a level of equity of access and uptake by gender and age in the obese cohort; a higher ratio has been seen in the groups expected to have higher prevalence and estimated uptake in those assessed as obese is higher than overall average uptake;
- The numbers assessed in the older age groups were slightly lower than would be expected, but this could reflect actual lower prevalence rather than poorer access;
- The percentage recorded as obese was significantly higher in the most deprived quintiles despite a lower uptake overall, so this could suggest that a high percentage of the obese cohort have accessed a health check;
- However, whilst estimated uptake appears to be above average it remained lower in the younger age groups and the percentage of females 65-74 recorded as obese was significantly higher than males of the same age.
- **The literature review found that those with higher risk factors were less likely to attend and as obesity prevalence is known to be higher in the most deprived areas it is important to increase equity of uptake by deprivation overall to ensure this cohort is assessed**.
- **Obesity was higher in the younger age groups who could potentially benefit more from early intervention and therefore overall uptake in these ages needs to be increased.**
- **Uptake is generally lower in the older female cohort so there may be potential for improvement in older women.**
- **The significantly higher percentage recorded as overweight but not as obese in the least deprived quintiles represents an opportunity for early prevention, particularly in men.**

4.6.2 Overweight and Obese Advice Given and Weight Management Referrals

4.6.2.1 Age and Gender – Advice Given

The following is based on ***recorded*** data and therefore may not be a true reflection of actual practice.

Of those assessed obese:-

- 74% were given general lifestyle advice;
- 57% were given weight/diet advice.

In those assessed as overweight:-

- 66% were given general lifestyle advice;
- 47% were given weight/diet advice.

In general, a higher percentage of men were given advice compared to women, and a higher proportion of older age groups compared to younger (**Figures 15 and 16**). Young, overweight males and females were the lowest percentage to be given advice. The numbers may be a reflection of poor recording highlighting the need for good data quality; however, from a preventative perspective the proportion of younger age groups given advice should be increased.

4.6.2.2 Age and Gender – Referred

Of the total assessed as having excess weight (BMI 25+), 4804 (8%) were recorded as being offered a referral to weight management services, however, 77% (3676) declined the referral.

Of the 1128 recorded as being referred:-

- 85% (962) were obese;
- 15% (166) were overweight.

This equates to only:-

- 4% of total assessed obese;
- <1% of total assessed overweight.

A significantly higher proportion of obese women took up a referral to services compared to men (6% to 3%). In women, the youngest and oldest age groups had the lowest percentage uptake but it remained even across men **(Figure 17)**.

Figure 15

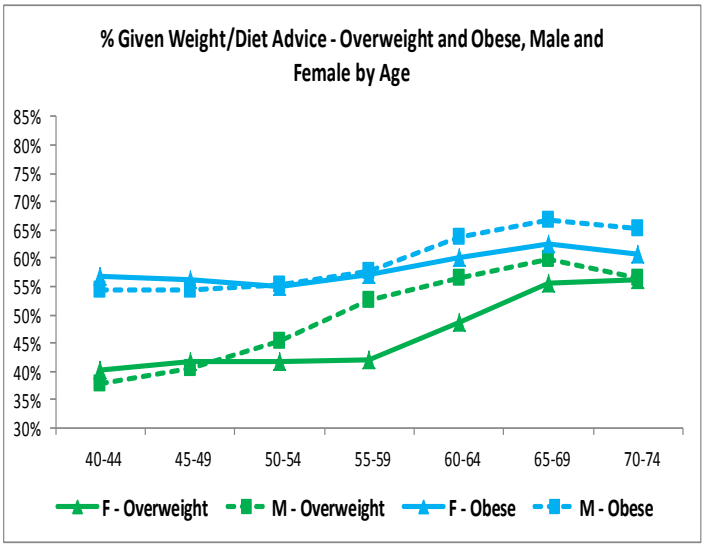


Figure 16

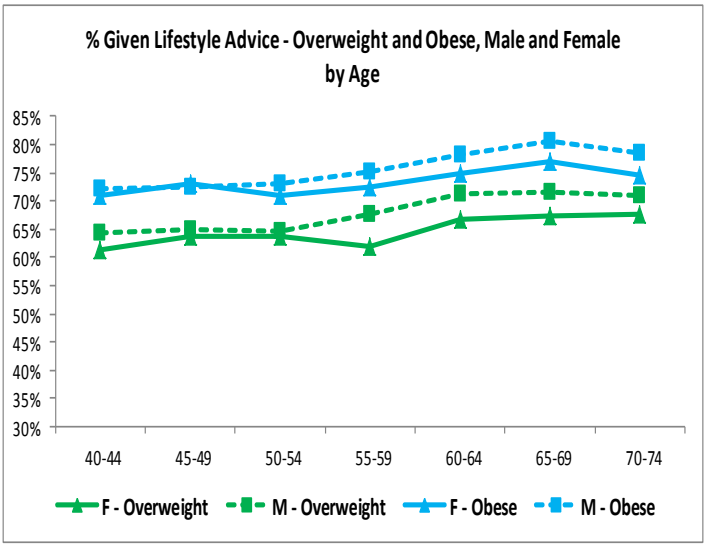
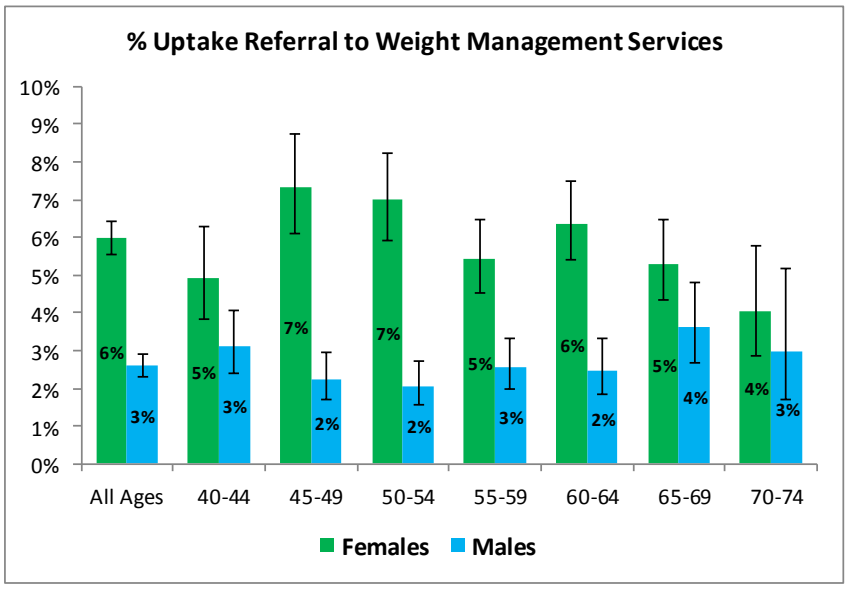


Figure 17



4.6.2.3 *Deprivation – Advice Given*

The percentage of those assessed as obese and given lifestyle or weight/diet advice was significantly lower than the average in Quintile 1 for both men and women (**Table 17**).

53% of obese women and 49% of obese men in Quintile 1 were recorded as having been given weight/diet advice compared to 60% and 58% in Quintile 5.

It is not known whether this is an artefact of poor recording in practices with the most deprived populations in early stages of the programme, but if this is a true reflection of practice there appears to be inequity in giving advice for those in deprived areas.

4.6.2.4 *Deprivation – Referred*

Although there were no significant differences in the uptake of referral to weight management services by quintile, the percentage was lower in the most deprived compared to the least deprived when split by gender.

For an equitable approach, referral uptake would be expected to be at least equal if not higher in the most deprived quintiles whereas:-

- 107 women (5.7%, 4.8-6.9) in Quintile 1 took up a referral compared to 98 women (7.2%, 5.9-8.7) in Quintile 5;
- 44 men (2.8%, 2.1-3.7) compared to 46 men (2.8%, 2.1-3.7) in Quintile 1 and 5 respectively.

Table 17 – Given Advice and Referred by Deprivation Quintile

Overweight = BMI 25+ minus those recorded as obese Obese = BMI 30+/27.5+ in Asian groups

	Lifestyle Advice		Weight/Diet Advice		Weight Referral		
	% of Assessed Overweight	% of Assessed Obese	% of Assessed Overweight	% of Assessed Obese	Weight Referral - Obese	% of Assessed Overweight	% of Assessed Obese
Total	66.4%	74.2%	46.9%	56.7%	962	0.4%	4.2%
Deprivation Quintile 1	65.5%	70.5% ▼	45.4%	51.1% ▼	151	0.6%	4.4%
Deprivation Quintile 2	67.6%	74.6%	48.3%	55.6%	228	0.4%	4.3%
Deprivation Quintile 3	68.2%	76.1% ▲	49.5%	59.6% ▲	228	0.4%	4.1%
Deprivation Quintile 4	64.6%	73.4%	45.3%	57.4%	201	0.3%	3.9%
Deprivation Quintile 5	65.3%	75.0%	46.2%	58.8%	144	0.4%	4.7%
F Quintile 1	64.2%	70.4% ▼	42.5%	52.5% ▼	107	0.9%	5.7%
F Quintile 2	65.7%	73.6%	44.3%	55.5%	158	0.6%	5.9%
F Quintile 3	67.0%	75.3%	45.8%	60.9% ▲	160	0.7%	6.0%
F Quintile 4	62.6%	72.5%	41.4%	58.4%	132	0.4%	5.6%
F Quintile 5	64.4%	73.9%	43.9%	60.0%	98	0.7%	7.2%
M Quintile 1	66.7%	70.6% ▼	47.8%	49.4% ▼	44	0.4%	2.8%
M Quintile 2	69.0%	75.5%	51.4%	55.8%	70	0.3%	2.7%
M Quintile 3	69.0%	76.9%	52.1%	58.4%	68	0.2%	2.4%
M Quintile 4	66.0%	74.1%	48.0%	56.6%	69	0.2%	2.5%
M Quintile 5	65.8%	75.8%	47.8%	57.8%	46	0.3%	2.8%

Significance is compared to the Average and to Gender Average for F/M

Overweight and Obese Outcomes - Equity Analysis and Recommendations:-

- **The disproportionately low numbers offered and accepting referral to weight services needs to be investigated further to determine whether this is due to poor recording, practitioner preference or availability of services.**
- **Similarly, the lower percentage of younger age groups and overweight being offered advice should be further investigated.**
- **The lower percentage given advice in the most deprived areas needs to further investigated and improved if it is a true reflection of practice.**
- **The percentage uptake of referrals in deprived areas needs to be increased.**

4.6.3 Assessed as a Current Smoker

4.6.3.1 Smokers - Age and Gender

The percentage assessed as a current smoker is significantly higher in men, and is significantly higher in the younger age groups in both men and women. This is in line with known prevalence of smoking (**Table 18**).

However, the observed percentage of assessed that were smokers in Derbyshire is lower than the overall levels of estimated smoking prevalence in the Ready Reckoner tool in men and women and across all age groups. Derbyshire is generally lower than average for smoking but there is geographical variation with higher levels in the North (see **Figure 2**).

By applying the estimated smoking prevalence to the overall numbers invited, it is estimated that approximately 33,400 would be smokers, but this is likely to be an overestimation if smoking prevalence is generally lower in Derbyshire. However, it does suggest that uptake may be lower in the smoking cohort compared to the average which would be in line with the literature review.

Table 18 – Assessed as Current Smoker by Age and Gender

	Assessed	Current Smoker	% of Assessed		Estimated Smoking Prevalence[i]	Expected number of invited that are Smokers[ii]	Estimated Uptake of Smokers[iii]	Average Overall Uptake Rate
Total	94,273	15,755	17%					
Females	45,903	7,298	16%	▼	17%	13014	56%	64%
Males	48,370	8,457	17%	▲	24%	20364	42%	60%
F 40-44	4,401	931	21%	▲	24%	2595	36%	40%
F 45-49	5,303	1,190	22%	▲	23%	2622	45%	49%
F 50-54	7,169	1,350	19%	▲	22%	2815	48%	55%
F 55-59	8,356	1,287	15%		20%	2515	51%	63%
F 60-64	9,271	1,281	14%	▼	17%	2011	64%	73%
F 65-69	7,982	939	12%	▼	14%	1352	69%	80%
F 70-74	3,421	320	9%	▼	12%	435	74%	87%
M 40-44	5,951	1,491	25%	▲	31%	4958	30%	35%
M 45-49	7,938	1,640	21%	▲	31%	5286	31%	45%
M 50-54	9,110	1,672	18%		27%	4400	38%	53%
M 55-59	8,511	1,370	16%	▼	26%	3291	42%	62%
M 60-64	7,900	1,164	15%	▼	23%	2366	49%	72%
M 65-69	6,400	833	13%	▼	20%	1476	56%	82%
M 70-74	2,560	287	11%	▼	16%	413	69%	95%

i Ready Reckoner Tool ii Expected Invites Smokers by applying estimated prevalence iii Estimated Uptake based on Actual Assessed/Estimated Invites Smokers

Female/Male Significance is compared to the Average, Age Group is compared to Gender Average

Within the Quality Outcomes Framework (QOF) is a measure for the percentage of patients aged 15+ years with a smoking status recorded on practice registers within the last two years[15]. The percentage achieved by practices on this measure ranges from 76.9% to 96.5% in Derbyshire, therefore is of variable quality and could underestimate the actual number of smokers if they are not recorded on the register.

Of the 45,870 known to be smokers on the QOF register that were eligible, 73% had been invited, significantly higher than the average, but only 41% had been assessed (**Table 19**). This does also seem to suggest that uptake is lower than average in the smoking cohort.

[15]http://www.hscic.gov.uk/qof

Table 19 –Current Smokers Assessed on the Smoking Register by CCG

	Overall	Erewash CCG	Hardwick CCG	North Derbyshire CCG	Southern Derbyshire CCG
QOF Estimated Smokers 13/14	110765	16437	18469	43350	32509
Eligible on Register	45870	6543	7063	18349	13915
% Eligible of Register	41%	40%	38%	42%	43%
Total Invited	33669	5349	6150	14561	7609
% Invited of Eligible	73% ▲	82% ▲	87% ▲	79% ▲	55% ▼
Assessed	13943	2102	2483	6271	3087
% Assessed of Invited	41% ▼	39% ▼	40% ▼	43% ▼	41% ▼

Significance is compared to the Average

4.6.3.2 Smokers - Deprivation

The percentage of those assessed as smokers was considerably higher in the most deprived quintiles compare to the average, as would be expected from the known prevalence. Smokers decreased in line with deprivation from 29% in Quintile 1 to just 9% in Quintile 5 (**Table 20**). Smokers were significantly higher than average for both men and women in the most deprived quintiles.

Table 20 –Assessed as Current Smoker by Deprivation

	Assessed	Current Smoker	% of Assessed
Total	94,273	15,755	17%
Deprivation Quintile 1	10,915	3,187	29% ▲
Deprivation Quintile 2	18,789	4,302	23% ▲
Deprivation Quintile 3	22,844	3,680	16%
Deprivation Quintile 4	24,095	2,921	12% ▼
Deprivation Quintile 5	16,444	1,500	9% ▼
F Quintile 1	5,601	1,634	29% ▲
F Quintile 2	9,311	2,050	22% ▲
F Quintile 3	10,921	1,618	15% ▼
F Quintile 4	11,641	1,296	11% ▼
F Quintile 5	7,873	626	8% ▼
M Quintile 1	5,314	1,553	29% ▲
M Quintile 2	9,478	2,252	24% ▲
M Quintile 3	11,923	2,062	17%
M Quintile 4	12,454	1,625	13% ▼
M Quintile 5	8,571	874	10% ▼

Significance is compared to the Average, Gender is compared to Gender Average

Current Smokers Uptake - Equity Analysis and Recommendations:-

- There may be a lower uptake of health checks in smokers;
- Prevalence is significantly higher in younger age groups and the most deprived and these groups have lower overall uptake rates.
- **It is likely that a higher proportion of those that have been invited but not attended from these groups are smokers therefore focusing on increasing uptake in the non-attenders in deprived and younger age groups would increase equity.**

4.6.4 Current Smokers Advice Given and Stop Smoking Referrals

4.6.4.1 Age and Gender – Advice Given

An average of 84% of smokers were recorded as being given health education and lifestyle advice on smoking. This was generally consistent for men (84%) and women (83%), and across age groups, although a significantly lower percentage of men aged 70-74 were recorded as being given advice compared to the male average (79%) (**Figure 18**).

4.6.4.2 Age and Gender – Referred

1,002 current smokers accepted a referral to stop smoking services, an average of 6%. The percentage of women (5.5%) was lower than men (7.1%) and was generally higher in the older age groups. Females aged 45-49 had a significantly lower rate than the average at 4.3% (**Figure 19**).

4.6.4.3 Deprivation – Advice Given

Compared to the average and those in Quintile 5, a significantly lower percentage of those in Quintile 1 were recorded as being given health education and lifestyle advice on smoking at 82%. Females in Quintile 1 were significantly lower than average at 80% (**Table 21**).

4.6.4.4 Deprivation – Referred

There were no significant differences in the overall percentage of accepted referrals by deprivation, but for uptake to be equitable a higher percentage would be required in the more deprived quintiles and there appeared to be no relationship. Overall uptake in Quintile 1 was 5.6% compared to the average of 6.4%, however, in Quintile 2 it was 6.9%.

There was variation between men and women, and the lowest uptake was seen in females in Quintile 3 at 4.4% followed by Quintile 1 at 5.0%. In comparison, male uptake was significantly higher than females in Quintiles 3 and 4 at 7.1% and 7.9%, although Quintile 1 had the lowest uptake in men at 6.3% (**Table 21**).

Figure 18

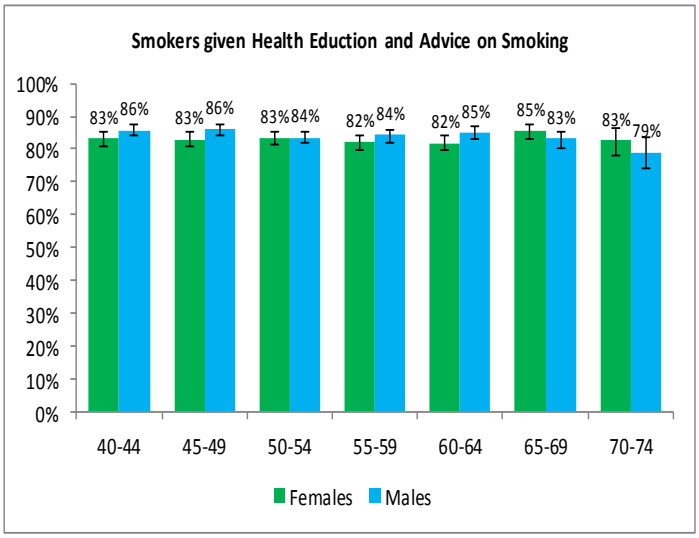


Figure 19

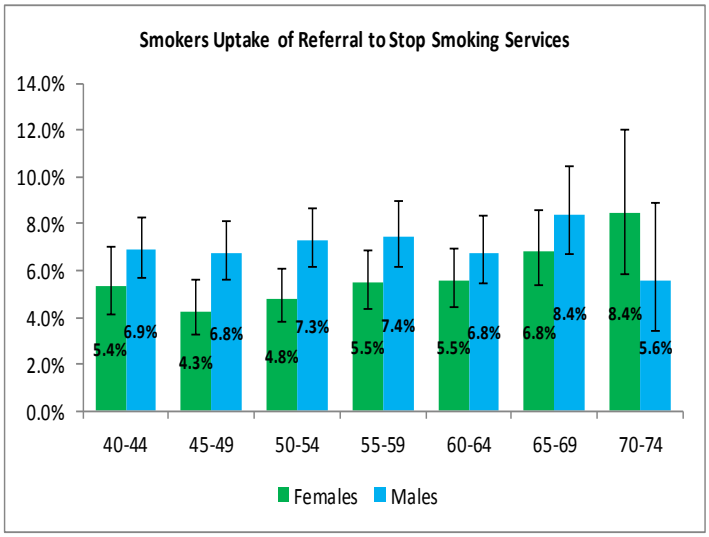


Table 21 – Advice Given and Uptake of Stop Smoking by Deprivation

	Stop Smoking Advice		Stop Smoking Services Uptake	
Total	13,202	84%	1,002	6.4%
Deprivation Quintile 1	2,600	82% ▼	180	5.6%
Deprivation Quintile 2	3,644	85%	295	6.9%
Deprivation Quintile 3	3,063	83%	219	6.0%
Deprivation Quintile 4	2,475	85%	196	6.7%
Deprivation Quintile 5	1,276	85%	96	6.4%
F Quintile 1	1,313	80% ▼	82	5.0%
F Quintile 2	1,706	83%	130	6.3%
F Quintile 3	1,354	84%	72	4.4% ▼
F Quintile 4	1,091	84%	68	5.2%
F Quintile 5	526	84%	40	6.4%
M Quintile 1	1,287	83%	98	6.3%
M Quintile 2	1,938	86% ▲	165	7.3%
M Quintile 3	1,709	83%	147	7.1%
M Quintile 4	1,384	85%	128	7.9%
M Quintile 5	750	86%	56	6.4%

Significance is compared to the Average

Smoking Outcomes - Equity Analysis and Recommendations:-

- **Ensure that older male smokers receive advice on smoking.**
- **Increase the uptake of referral to Stop Smoking services in younger age groups, particularly females.**
- **Increase the uptake of referral to Stop Smoking services in the most deprived, particularly females.**

4.6.5 Physical Activity Levels Screening

4.6.5.1 Comparison to Estimated Prevalence

The GP PAQ (Physical Activity Questionnaire) is a validated tool for use in general practice[16] and is used within the Derbyshire health check assessment. There are 4 simple categories of physical activity levels:-

- Inactive - Sedentary job and no physical exercise or cycling;
- Moderately Inactive - Sedentary job and < 1 hour physical exercise OR Standing job and no physical exercise;
- Moderately Active - Sedentary job and 1-3 hours physical exercise OR Standing job and < 1 hour physical exercise OR Physical job and no physical exercise;
- Active - Sedentary job and ≥ 3 hours physical exercise OR Standing job and 1-3 hours physical exercise OR Physical job and < 1 hour physical OR Heavy manual job.

[16] https://www.gov.uk/government/publications/general-practice-physical-activity-questionnaire-gppaq

Across the 5 years 70% (67,067) of those assessed had a physical activity level recorded using GP PAQ, and of those recorded:-

- Inactive - 12% (7,967);
- Moderately Inactive - 11% (7,317);
- Moderately Active - 34% (22,591);
- Active - 44% (29,192).

Whilst the categories are not directly comparable to national estimates, the percentage recorded as Inactive and Moderately Inactive is lower than would be expected:

- Estimates of 28% of adults in Derbyshire would equate to 26,396 of total assessed compared to the 15,284 recorded (Inactive + Moderately Inactive).
- The Ready Reckoner tool estimates an average of 65% of men and 70% of women are 'non-exercisers' equating to 13,491 of those assessed *each year.*
- Whilst the Ready Reckoner may overestimate, it is likely that the Derbyshire data are an underestimate of the total Inactive eligible population.

4.6.5.2 Physical Activity - Gender and Age

- Females were 34% significantly more likely to be classed as Inactive compared to males (OR 1.34, 95% CI 1.31-1.44, p<0.001).
- 14% of women were Inactive and 13% Moderately Inactive compared to 10% and 9% of men.
- A significantly lower percentage of women were classified as Active at 39% compared to 47% of men.

- National data show Inactivity levels increasing with age, but this relationship is not clearly defined in the Derbyshire data, with no significant differences apart from in 70-74 year olds (**Figure 20**)

- However, when the percentage classed as Active are compared, levels are significantly higher in the younger age groups (**Figure 21**).

4.6.5.3 Physical Activity - Deprivation

There is a clear relationship between deprivation and physical inactivity (**Figures 22 and 23**).

- A significantly higher proportion than average were classified as Inactive in Quintile 1 at 16%, and the percentage decreased significantly in line with deprivation to 9% in Quintile 5.
- The percentage of Inactive females and males in Quintiles 1 and 2 were both significantly higher than the gender averages, and Inactive females were significantly higher than males in all quintiles except for the most deprived.
- 33% of females were classed as Active in Quintile 1 compared to 44% in Quintile 5.
- 40% of males were classed as Active in Quintile 1 compared to 52% in Quintile 5.

Physical Activity Uptake - Equity Analysis and Recommendations:-

- The lower percentage of Active people in older age groups supports the targeted invitation approach, however, Inactivity levels are similar across all age groups;
- The clear relationship between Inactivity levels and deprivation highlights the need for increased uptake in these groups;
- Women are more likely to be inactive, particularly in deprived groups.
- **As previously, the levels of Inactivity highlight the need for increased uptake in deprived groups overall.**
- **There is a clear need to increase this in the younger deprived populations.**
- **There needs to be a focus on increasing activity levels from Inactive across all groups, and in increasing the levels of Active in the older age groups.**

Figure 20

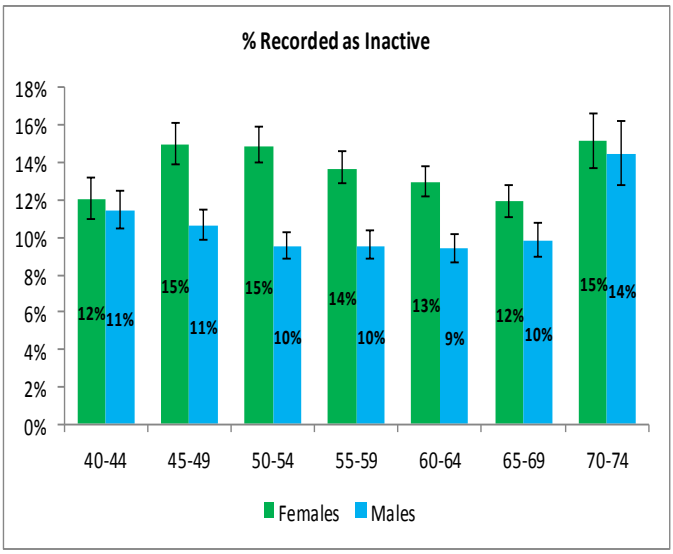


Figure 21

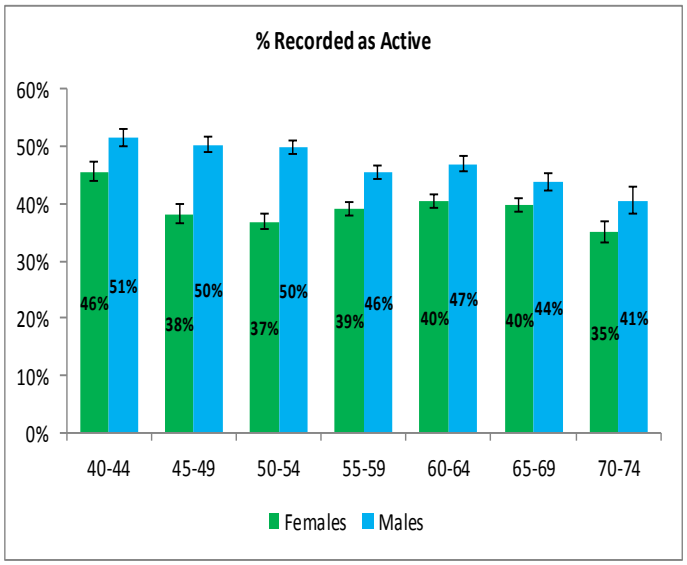


Figure 22

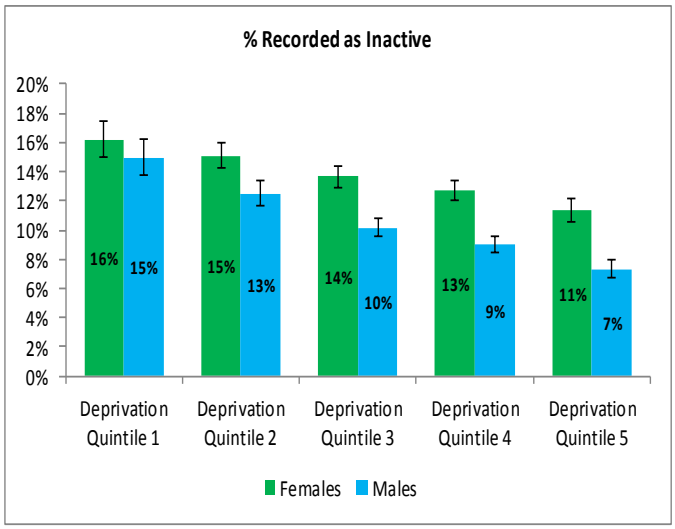
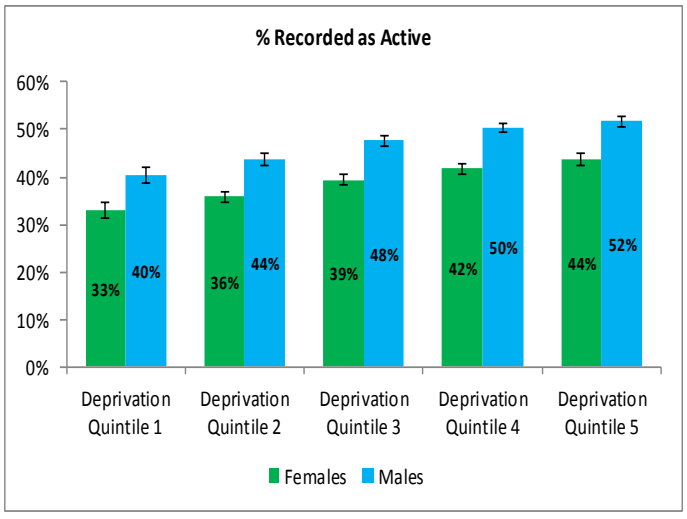


Figure 23



4.6.6 Physical Activity Brief Intervention and Exercise Service Referrals

4.6.6.1 Brief Intervention - Gender, Age and Deprivation

- 77% of the total assessed received a brief intervention.
- At least 75% of all age groups were given a brief intervention, but the percentages were significantly higher in females aged 40-44 and 60-64 years and males aged 60-69 years.
- Men and women aged 50-54 years were significantly lower.
- A significantly higher percentage of those in the most deprived areas received a brief intervention compared to the average, for both males and females.

Of those assessed as Inactive:-

- 78% received a brief intervention, and this was significantly higher in men than women;
- In women a significantly lower percentage of those aged 64-69 and 70-74 years were given a brief intervention;
- The percentage for men aged 70-74 was significantly lower than the male average;
- A significantly higher percentage of those in the most deprived areas received a brief intervention compared to the average, for both males and females.

4.6.6.2 Referral - Gender, Age and Deprivation

- Overall 6% of total assessed patients took up a referral for exercise services and this was significantly higher for women at 7% compared to men at 5%.
- Uptake in younger ages was significantly higher compared to the older age groups for both men and women.
- A significantly higher percentage of those in the most deprived areas were referred, for both males and females.

Of those assessed as Inactive:-

- 996 (22%) females were recorded as being referred and 163 (14%) declined;
- 555 (16%) males were recorded as being referred and 89 (14%) declined;
- This suggests a significantly higher percentage of Inactive females were offered a referral overall (996+163=1159, 26%) compared to Inactive males (555+89=644, 19%);
- A significantly lower percentage of the Inactive 60-74 year olds were offered a referral in both men and women, and higher percentages of older groups were recorded as declining a referral;
- Therefore overall uptake was significantly higher in younger compared to older age groups.

- A significantly higher percentage of those in the most deprived areas were offered a referral.
- The percentage offered a referral was significantly lower in men across all quintiles except the most deprived.
- Two thirds of Inactive females in Quintile 1 and 2 were offered a referral compared to a quarter of males though both were higher than average.
- As there was no significant difference in the percentage that declined, the overall uptake rate in the most deprived quintiles was not significantly higher despite a higher percentage offered.

Physical Activity Outcomes - Equity Analysis and Recommendations:-

- The data suggest men are more likely to be given a brief intervention and women more likely to be referred to exercise services, which is potentially equitable when related to overall levels of activity;
- However, the older age groups had lower rates of both brief interventions and referrals to services, which given the decrease in those that are Active could represent inequity;
- There appears to be equity in brief interventions and referral to exercise services by deprivation with higher proportions for both;
- However, although the percentage offered a referral is higher this does not appear to translate into higher uptake overall, and there may be inequity of referrals for men in the most deprived quintiles compared to women.
- **The reasons for lower brief interventions and referral to services, and potentially higher decline rates, in older age groups need to be investigated further to determine whether this is due to perceived appropriateness e.g. of interventions and services for older people.**
- **The percentage of deprived populations offered a referral may need to be increased along with an investigation of the reasons for declining a referral in order to increase overall uptake in these groups.**

Figure 24

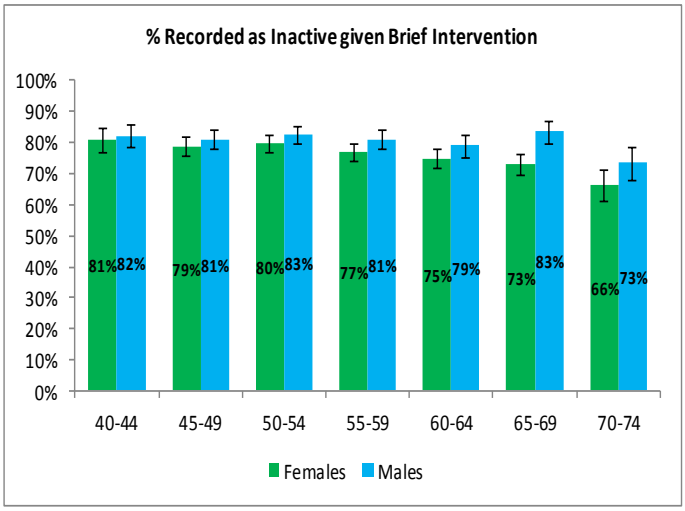
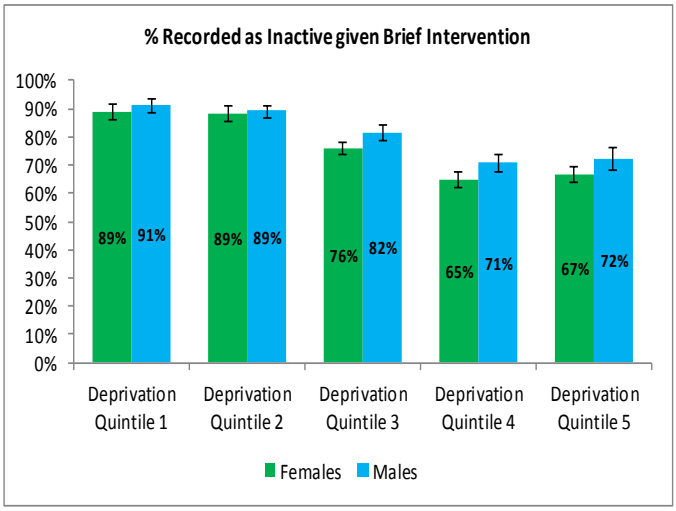


Figure 25



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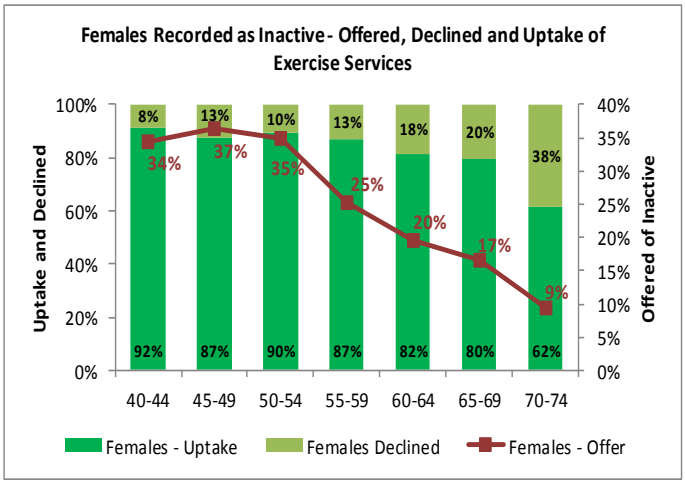


Figure 27

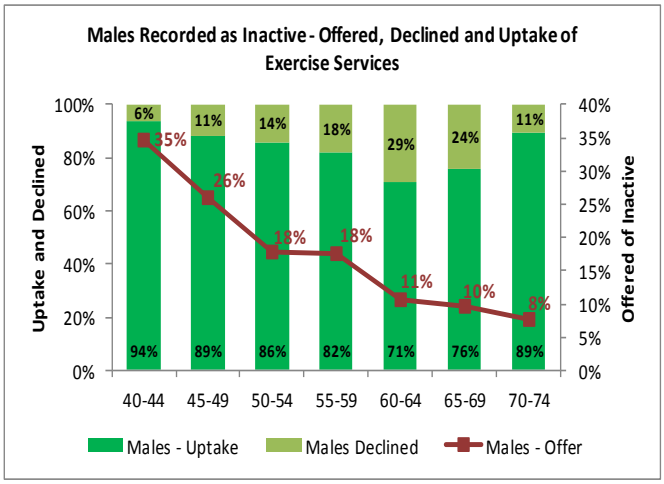


Figure 28

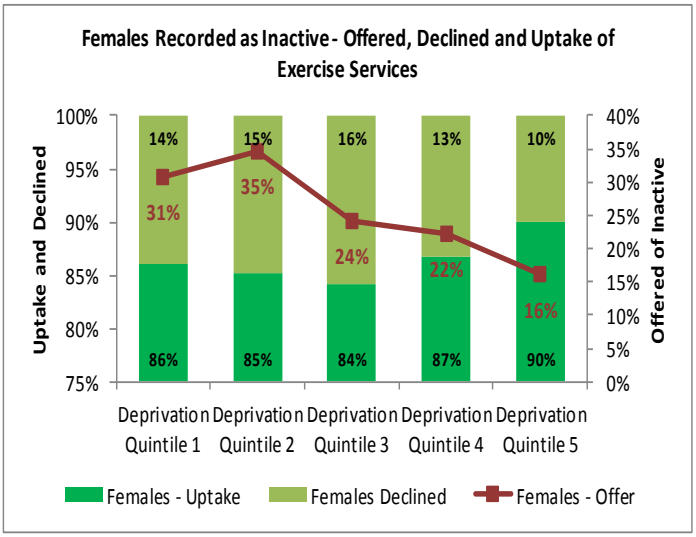
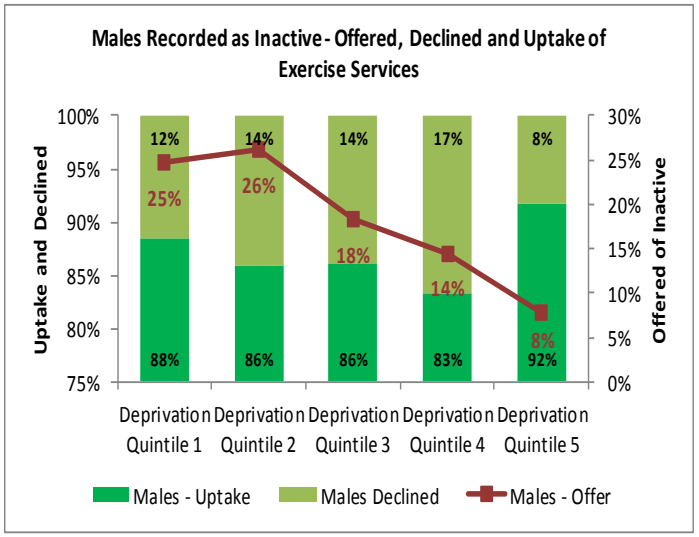


Figure 29



4.6.7 Alcohol Intake Screening

Alcohol screening was incorporated into the health check process in 2012. Potential increasing or higher risk drinking is initially assessed using the brief screening Audit-C tool comprising of 3 simple questions[17]. If there is an indication of increasing or higher risk drinking, the full Audit-C alcohol screen should be completed which comprises a further 7 questions to ascertain whether alcohol intake levels indicate a lower, increasing or higher risk, or possible dependence.

Across the 5 years of data, 82,434 (87%) of attendees were *recorded* as receiving a brief alcohol screen, and of these 11,462 (14%) went on to receive the full alcohol screen.

4.6.7.1 Alcohol Screening - Gender and Age

- A significantly lower percentage of men were recorded as receiving the brief alcohol screen, at 86% compared to 89% of women.
- However, a significantly higher percentage of men were recorded as then receiving the full screen at 17% compared to 11% of women.
- Men were 1 ½ times significantly more likely to be given the full screen (OR 1.62, 95% CI 1.56-1.69, p<0.001).

- A significantly higher percentage of 40-49 year olds received the brief screen compared to those aged 50+ years, in both men and women (**Figure 30**).
- And a significantly higher percentage of 40-49 year olds went on to have the full screen compared to those aged 50+ years, in both men and women (**Figure 31**).
- Men and women aged 40-49 were between 30%-40% significantly more likely to be given the full screen compared to those aged 50+ years (OR 1.36, 95% CI 1.31-1.42, p<0.001).

[17] Audit-C, DH, 2013 http://www.alcohollearningcentre.org.uk/Topics/Browse/BriefAdvice/?parent=4444&child=4898

4.6.7.2 Alcohol Screening - Deprivation

- A significantly higher percentage in the two most deprived quintiles were recorded as receiving the brief alcohol screen compared to the average and those in the two least deprived quintiles, for both men and women (**Figure 32**).
- However, in women a significantly lower percentage of those in Quintile 1 went on to have a full alcohol screen.
- In both men and women, a significantly higher percentage in Quintile 3 had the full screen (**Figure 33**).

Figure 30

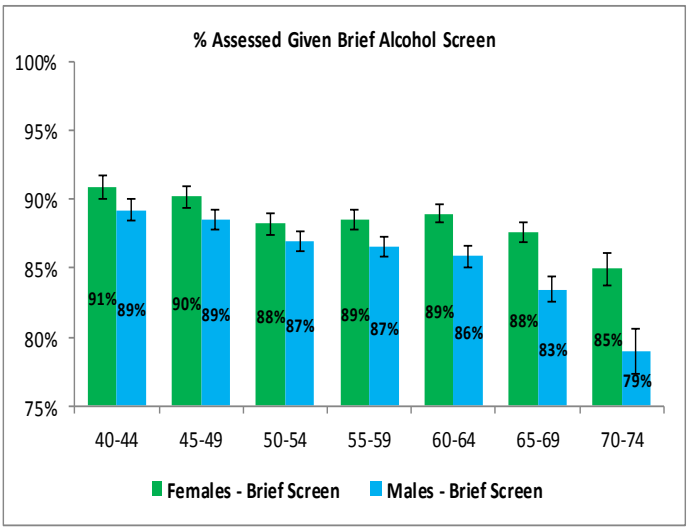


Figure 31

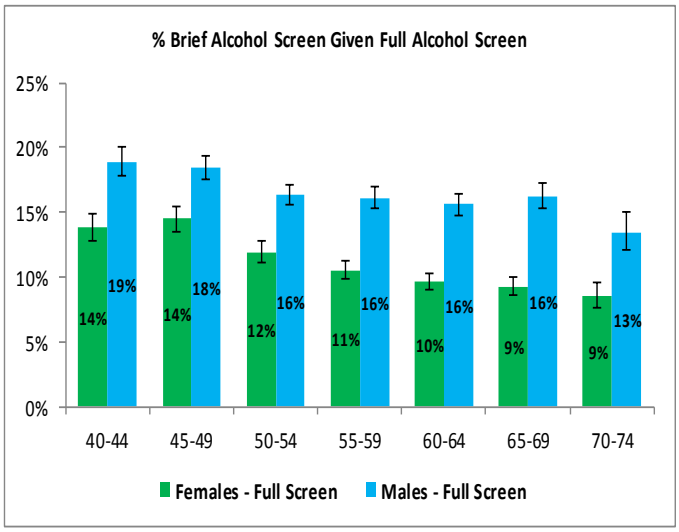


Figure 32

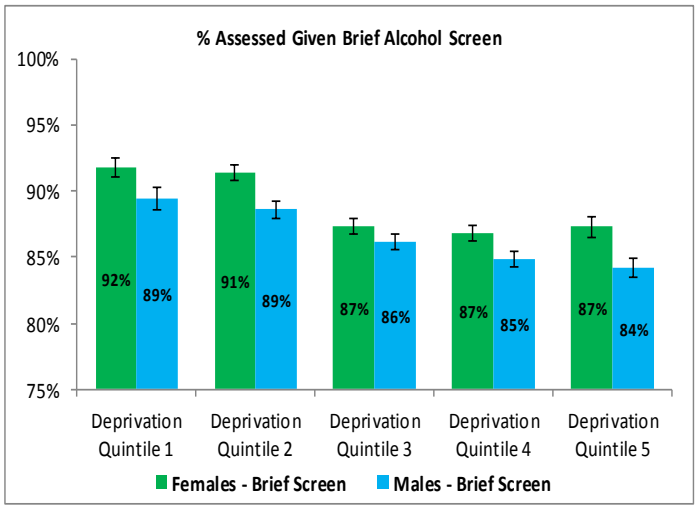
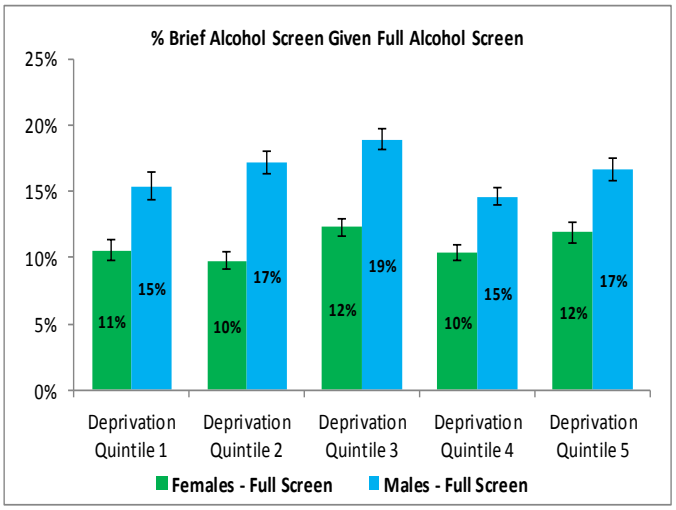


Figure 33



4.6.7.3 Alcohol Screening - CCG

Erewash CCG

- 90% were recorded as receiving the brief alcohol screen.
- The CCG had the highest percentage given a full alcohol screen at 27%.

Hardwick CCG

- Nearly 100% were recorded as receiving the brief alcohol screen.
- 16% went on to have the full alcohol screen.

North Derbyshire CCG

- 84% were recorded as receiving the brief alcohol screen, significantly lower than the average.
- 8% had the full alcohol screen, significantly lower than the average.

Southern Derbyshire CCG

- 86% were recorded as receiving the brief alcohol screen, significantly lower than the average
- 16% went on to have the full alcohol screen

Table 22 – Alcohol Screening by CCG

	Assessed	Brief Alcohol Screen	% of Assessed		Full Alcohol Screen	% of Brief Alcohol Screen	
Total	94,273	82,434	87%		11,462	14%	
Erewash CCG	13,432	12,084	90%	▲	3,222	27%	▲
Hardwick CCG	13,604	13,434	99%	▲	2,087	16%	▲
North Derbyshire CCG	44,278	37,131	84%	▼	3,080	8%	▼
Southern Derbyshire CCG	22,959	19,785	86%	▼	3,073	16%	▲

Significance is compared to the Average

Alcohol Intake - Equity Analysis and Recommendations:-

- The population needs analysis highlighted that males consume more compared to females, but in men and women increased and higher risk drinking was most prevalent in 45-64 year olds;
- Whilst more deprived populations may have higher rates of binge drinking, those in high income professions may drink more frequently above recommended levels;
- As the relationship between demographics and alcohol intake varies widely, all health check attendees should receive the brief alcohol screen, particularly men and middle age groups, however the data does not appear to show this;
- Whilst more men received the full screen overall, it was higher in younger age groups, and the percentage of women was significantly lower, both of which may result in inequity;
- The data show that although a lower percentage in less deprived quintiles received the brief screen, a higher percentage went on to have the full screen. This appears to be in line with the evidence of higher levels of increased risk drinking in high income populations and therefore the lower proportion receiving the initial brief screen, and particularly in men, may not be equitable.
- **It should be ensured that the brief alcohol screen is administered and recorded for all attendees.**
- **If the data are a true reflection, the percentage of attendees given the brief alcohol screen needs to increase in men, middle age groups and less deprived quintiles.**
- **North Derbyshire CCG may need to increase the numbers given alcohol screening.**

4.6.8 Alcohol Advice Given, Brief Intervention and Service Referrals

Analysis by CCG reveals clear disparities in the recording of those given the full alcohol screen that then receive advice, a brief intervention or are referred to alcohol services (**Table 23**).

The recording of these data items needs to be further investigated to determine whether it is a true reflection of the health check process.

An analysis has been completed for the percentage given advice, but any conclusions that can be drawn are limited.

Table 23 – Advice Given, Brief Intervention and Referral of those with a Full Alcohol Screen by CCG

	Full Alcohol Screen	Advice Given	% of Full Alcohol Screen		Brief Intervention	% of Full Alcohol Screen	Referred to alcohol services	% of Full Alcohol Screen
Total	11,462	4,386	38%		77	0.7%	29	0.3%
Erewash CCG	3,222	841	26%	▼	*	*	11	0.3%
Hardwick CCG	2,087	790	38%		*	*	*	*
North Derbyshire CCG	3,080	1,537	50%	▲	73	2.4%	12	0.4%
Southern Derbyshire CCG	3,073	1,218	40%		*	*	*	*

*Data suppressed <5 Significance is compared to the Average

4.6.8.1 Alcohol Advice - Gender and Age

Of those given the full alcohol screen, 4,386 (38%) were recorded as being given alcohol advice.

- A significantly higher percentage of men received advice at 41% compared to 34% of women, due to lower levels in the younger age groups.
- In women, the percentage given advice increased with age although the differences between age groups were not significant.
- In men, proportions were similar across age groups, but significantly higher than women for those aged 40-59 years.

4.6.8.2 Alcohol Advice – Deprivation

- The percentage given advice was significantly lower in Quintiles 1 and 2 compared to the average at 31% and 34% respectively.
- In Quintile 1 the percentages of both men and women were significantly lower than the average.
- The highest percentages given advice in both men and women were in Quintile 4.

Figure 34

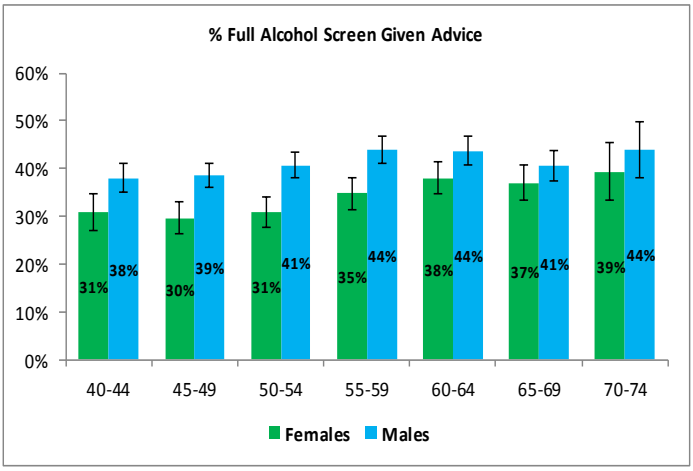
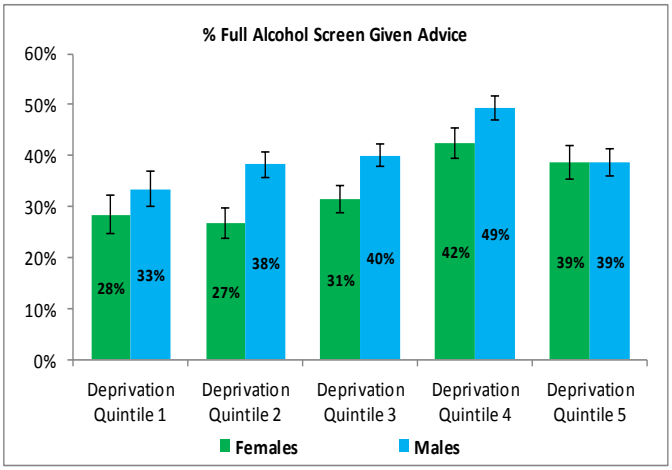


Figure 35



4.6.9 Learning Disability and Mental Illness

The data available for analysis by Learning Disability and Mental Illness are limited and it is only possible to provide a comparison against the average of invitations and uptake as a whole.

In 2013/14 on practice registers, there were 5117 adults with a learning disability (LD) and 8231 patients with a severe mental illness (SMI- schizophrenia, bipolar or other affective disorder) in Derbyshire (**Table 24**).

In addition to the NHS Health Check, people aged 14+ with a LD are entitled to an annual health check and QOF achievement for the SMI register includes annual monitoring of blood pressure, smoking and alcohol use.

- There were 1120 patients on the LD register and 2241 on the SMI register that were also eligible for an NHS Health Check, which equates to 22% and 27% of the total QOF registers (**Table 24**).

Compared to the average:-

- The percentage of the eligible population offered an invitation was significantly lower for those on the LD register, but significantly higher in those on the SMI register;

- Uptake of offer was significantly lower than average in both groups. Those on the LD register were 26% less likely to attend (OR 0.74, 95% CI 0.63-0.87, p<0.001), and on the SMI register 33% less likely (OR 0.67, 95% CI 0.60-0.74, p<0.001);

- Of those assessed, a significantly higher percentage were recorded as obese and as smokers for both LD and SMI when compared to the average, which is in line with national prevalence data.

Table 24 – Invites and Uptake on the Learning Disability and Severe Mental Illness Registers

	LD	SMI	Average
QOF Register 13/14	5117	8231	
Eligible on Register	1120	2241	
% Eligible of Register	22%	27%	
Total Invited	623	1485	
% Invited of Eligible	56% ▼	66% ▲	63%
Assessed	339	771	
% Assessed of Invited	54% ▼	52% ▼	62%
Of those assessed and recorded			
Obese	38% ▲	33% ▲	24%
Smoker	19% ▲	37% ▲	17%

Significance is compared to the Average

Learning Disability and Mental Health - Equity Analysis and Recommendations:-

- Those with Learning Disabilities and Mental Illness have a demonstrated higher need for access to the programme;
- The data suggest that there is inequity of offer for those on the LD register;
- There is inequity of uptake for both the LD and SMI registers.
- **The extent to which existing provision of alternative health checks could impact upon offer of invitation and uptake is not known but it should be ensured that eligible people with Learning Disabilities and Mental Illness are identified for invitation and uptake.**

4.6.10 Disease Diagnoses

Within Derbyshire a quality standard of 3 months has been adopted as the time frame within which a disease diagnosis could be a direct outcome of having a health check.

The numbers of additional diagnoses appear to be in line with the expected outcomes estimated from the Ready Reckoner tool and study sample with the exception of CKD, which is considerably lower in Derbyshire. However it is not known whether the measurements are directly comparable e.g. unknown diagnosis time limit, and diagnosis and recording of CKD in practices is known to vary widely nationally[18].

4.6.10.1 Disease Diagnoses - Age, Gender and Deprivation

Given the higher risk profile for males compared to females it is not unexpected that the percentage of men with raised blood pressure (BP >=140/90), raised blood glucose (BG >=6 or HbA1C 6-15/>=42), or a diagnosis within 3 months is significantly higher than women (**Table 25**).

- Over a quarter of women and two thirds of men assessed had a raised BP measurement.
- The percentage with a raised BP measurement increases significantly for progressive 5 year age bands.
- Raised BG also increases with age and is significantly higher than average in the 65+ years.

[18] National General Practice Profiles http://fingertips.phe.org.uk/profile/general-practice

- Men were 1 ½ times more likely to be diagnosed with hypertension (OR 1.65, 95% CI 1.51-1.82, p<0.001).
- Men were twice as likely to be diagnosed with diabetes (OR 2.13, 95% CI 1.77-2.55, p<0.001).

- The percentage of women with a low eGFR was significantly higher than men and increased with age, which is in line with known prevalence.
- The number of CKD diagnoses was much lower than estimated but this may be due to the 3 month cut off.
- There were no significant differences in raised BP, low eGFR and Hypertension diagnoses by deprivation quintile.
- In Quintile 1 the percentage was significantly higher than average for Raised BG, whilst in Quintile 5 it was significantly lower than average for Diabetes diagnoses.

Table 25 – Raised BP, Raised BG, Low EGFR and Disease diagnoses

	Assessed	Raised BP (% of Measured)		Raised BG (% of Measured)		Low eGFR (% of Measured)		Hypertension (% of Assessed)		Diabetes (Any) (% of Assessed)		CKD (1-5) (% of Assessed)	
Total	94,273	26,537	32%	4,863	14%	1,404	6%	1,913	2.0%	546	0.6%	138	0.1%
Average per year DCC		5,307		973		281		383		109		28	
Ready Reckoner		5,872		869		-		-		177		466	
Foster et al		5,704		-		-		-		104		-	
Females	45,903	10,801	27% ▼	1,983	12% ▼	844	7% ▲	702	1.5% ▼	169	0.4% ▼	86	0.2%
Males	48,370	15,736	37% ▲	2,880	16% ▲	560	4% ▼	1,211	2.5% ▲	377	0.8% ▲	52	0.1%
40-44	10,352	1,824	21% ▼	396	10% ▼	30	1% ▼	105	1.0% ▼	35	0.3% ▼	*	* ▼
45-49	13,241	2,902	26% ▼	605	12% ▼	66	2% ▼	195	1.5% ▼	45	0.3% ▼	*	* ▼
50-54	16,279	3,972	28% ▼	819	14%	126	3% ▼	282	1.7%	91	0.6%	13	0.1%
55-59	16,867	4,846	33%	910	14%	203	5% ▼	298	1.8%	103	0.6%	15	0.1%
60-64	17,171	5,574	37% ▲	949	15%	328	7% ▲	421	2.5% ▲	115	0.7%	29	0.2%
65-69	14,382	5,103	40% ▲	818	15% ▲	430	11% ▲	412	2.9% ▲	115	0.8% ▲	52	0.4% ▲
70-74	5,981	2,291	44% ▲	362	16% ▲	221	12% ▲	200	3.3% ▲	42	0.7%	21	0.4% ▲
Deprivation Quintile 1	10,915	3,097	32%	713	17% ▲	192	7%	255	2.3%	76	0.7%	21	0.2%
Deprivation Quintile 2	18,789	5,531	33%	937	14%	271	5%	408	2.2%	147	0.8% ▲	22	0.1%
Deprivation Quintile 3	22,844	6,504	33%	1,058	13%	369	6%	457	2.0%	134	0.6%	36	0.2%
Deprivation Quintile 4	24,095	6,651	33%	1,134	13%	315	5%	482	2.0%	128	0.5%	28	0.1%
Deprivation Quintile 5	16,444	4,411	31%	969	13%	244	5%	290	1.8%	56	0.3% ▼	31	0.2%

Raised BP, BG and Low EGFR recorded within 30 days of health check, Diagnosis within 3 months
Significance is compared to the Average

4.6.10.2Disease Diagnoses - CCGs

There is variation between CCGs in the percentage of those measured with a raised BP and BG and diagnosed with disease (**Table 26**).

Differences in populations, health check processes and length of programme running time will explain some of this variation, but it is also likely to be affected by the data quality of recording outcomes measures.

- Hardwick CCG had a significantly higher percentage with Raised BP, Raised BG and Hypertension compared to the average.
- Based on the risk profile for the Hardwick CCG population a higher percentage would be expected, suggesting a poor level of identification of those at risk.

- Erewash CCG had significantly lower percentages with Raised BP and BG.
- Based on the risk profile for Erewash this suggests either recording issues or differences in delivery.

- Southern Derbyshire was significantly higher for Raised BP but lower for Low eGFR.

- North Derbyshire was significantly higher for Raised BG but lower for Raised BP.

Data on the number of attendees with a Raised BP, Raised BG or a low eGFR that were followed up show:-

- 52% with Raised BP had a further measurement recorded within 6 months;
- 33% with a Raised BG had a further glucose test recorded within 6 months;
- 11% with a low eGFR had a creatinine albumin ratio test in the following 3 months.

It is not known whether this is a true reflection of follow up rates or a result of data recording **(Table 27**).

Table 26 – Raised BP, Raised BG, Low eGFR and Disease diagnoses

	Assessed	Raised BP		Raised BG		Low eGFR		Hypertension		Diabetes (Any)		CKD (1-5)	
Total	94,273	26,537	32%	4,863	14%	1,404	6%	1,913	2.0%	546	0.6%	138	0.1%
Erewash CCG	13,432	3,917	30% ▼	613	7% ▼	342	6%	285	2.1%	84	0.6%	37	0.3% ▲
Hardwick CCG	13,604	4,045	34% ▲	792	17% ▲	213	6%	331	2.4% ▲	103	0.8%	13	0.1%
North Derbyshire CCG	44,278	11,488	31% ▼	2,582	17% ▲	550	6%	810	1.8%	234	0.5%	55	0.1%
Southern Derbyshire CCG	22,959	7,087	34% ▲	876	12% ▼	299	4% ▼	487	2.1%	125	0.5%	33	0.1%

Significance is compared to the Average

Table 27 – Raised BP, Raised BG, Low eGFR Follow Up

	Raised BP Follow Up		Raised BG Follow Up		Low eGFR Follow Up	
Total	13,186	52%	1,497	33%	153	11%
Erewash CCG	1,963	53%	193	33%	36	11%
Hardwick CCG	2,259	56% ▲	251	34%	18	8%
North Derbyshire CCG	5,769	52%	793	32%	69	13%
Southern Derbyshire CCG	3,195	49% ▼	260	33%	30	11%

Significance is compared to the Average

Disease Diagnosis - Equity Analysis and Recommendations:-

- The increased risk profile and disease diagnoses in men supports the hypothesis that the targeted approach to invitation has provided equitable access to the programme, but highlights the need to increase attendance to achieve equity of uptake;
- A significantly higher percentage of females had low eGFR measured, but there was no difference in diagnosed CKD and overall the numbers of CKD appeared to be low;
- Although diagnoses in younger age groups were significantly lower than in older age groups, in 40-49 year olds there were on average per year 1000 with a raised BP, 220 with raised BG, 60 diagnosed with hypertension, and 16 with diabetes. Increasing the below average uptake in younger ages in areas identified as having higher risk factors would increase early prevention.
- **The lower than expected number of cases of diagnosed CKD should be investigated further to understand reasons for this e.g. time taken to diagnosis time, testing methods, data quality.**
- **The low percentage with raised measurements that are followed up should be investigated further.**

4.6.11 Prescribing and Referral to Practice

4.6.11.1 Statin and Anti-Hypertensive Prescribing

- A significantly higher percentage of men were prescribed statins and anti-hypertensives compared to women.
- A higher percentage of men were recorded as declining statins.
- Prescribing increased with age in both men and women, however the percentage declining statins also increased in line with age.

- A higher percentage in deprived areas were prescribed statins and anti-hypertensives compared to the average.
- A significantly higher percentage in the least deprived quintile declined statins.

- A significantly higher percentage in Hardwick CCG were prescribed statins and anti-hypertensives.
- A significantly lower percentage in Southern Derbyshire CCG (County) were prescribed statins.
- A significantly higher percentage in North Derbyshire CCG declined statins.

4.6.11.2 Referral on to the GP or Practice Nurse

- A significantly higher percentage of men were referred into practice compared to women, but this increased with age in both men and women.
- A higher percentage in Quintile 1 were referred into practice.
- A significantly higher percentage in Hardwick and Erewash CCGs were referred into practice compared to the average.

Table 28 – Prescribing and Practice Referrals

	Assessed	Prescribed Statins within 2m		Declined Statins at any time after		Prescribed Antihypertensives at any time after		Referred to GP or Practice Nurse	
Total	94,273	3,213	3%	1,292	1.4%	4,152	4.4%	18,593	20%
Females	45,903	1,029	2% ▼	396	0.9% ▼	1,669	3.6% ▼	7,564	16% ▼
Males	48,370	2,184	5% ▲	896	1.9% ▲	2,483	5.1% ▲	11,029	23% ▲
F 40-44	4,401	19	0.4% ▼	4	0.1% ▼	72	1.6% ▼	376	9% ▼
F 45-49	5,303	38	1% ▼	9	0.2% ▼	108	2.0% ▼	573	11% ▼
F 50-54	7,169	84	1% ▼	8	0.1% ▼	170	2.4% ▼	951	13% ▼
F 55-59	8,356	141	2% ▼	27	0.3% ▼	225	2.7% ▼	1,411	17%
F 60-64	9,271	244	3%	78	0.8%	391	4.2% ▲	1,774	19% ▲
F 65-69	7,982	306	4% ▲	133	1.7% ▲	455	5.7% ▲	1,647	21% ▲
F 70-74	3,421	197	6% ▲	137	4.0% ▲	248	7.2% ▲	832	24% ▲
M 40-44	5,951	64	1% ▼	10	0.2% ▼	129	2.2% ▼	907	15% ▼
M 45-49	7,938	112	1% ▼	18	0.2% ▼	242	3.0% ▼	1,489	19% ▼
M 50-54	9,110	196	2% ▼	57	0.6% ▼	385	4.2% ▼	1,845	20% ▼
M 55-59	8,511	291	3% ▼	119	1.4% ▼	436	5.1%	1,998	23%
M 60-64	7,900	526	7% ▲	190	2.4% ▲	560	7.1% ▲	2,105	27% ▲
M 65-69	6,400	639	10% ▲	327	5.1% ▲	502	7.8% ▲	1,845	29% ▲
M 70-74	2,560	356	14% ▲	175	6.8% ▲	229	8.9% ▲	840	33% ▲
Deprivation Quintile 1	10,915	487	4% ▲	121	1.1%	557	5.1% ▲	2,687	25% ▲
Deprivation Quintile 2	18,789	710	4%	225	1.2%	939	5.0% ▲	3,780	20%
Deprivation Quintile 3	22,844	796	3%	284	1.2%	984	4.3%	4,355	19%
Deprivation Quintile 4	24,095	697	3% ▼	333	1.4%	1,002	4.2%	4,586	19%
Deprivation Quintile 5	16,444	482	3% ▼	317	1.9% ▲	631	3.8% ▼	2,965	18% ▼

Significance is compared to the Average and to Gender Average for F/M

Table 29 – Prescribing and Practice Referrals

	Assessed	Prescribed Statins within 2m		Declined Statins at any time after		Prescribed Antihypertensives at any time after		Referred to GP or Practice Nurse	
Total	94,273	3,213	3.4%	1,292	1.4%	4,152	4.4%	18,593	20%
Erewash CCG	13,432	492	3.7%	151	1.1%	594	4.4%	3,048	23% ▲
Hardwick CCG	13,604	575	4.2% ▲	119	0.9% ▼	729	5.4% ▲	4,275	31% ▲
North Derbyshire CCG	44,278	1,454	3.3%	748	1.7% ▲	1,877	4.2%	7,177	16% ▼
Southern Derbyshire CCG	22,959	692	3.0% ▼	274	1.2%	952	4.1%	4,093	18% ▼

Significance is compared to the Average

Prescribing - Equity Analysis and Recommendations:-

- There appears to be a good level of equity for prescription of statins and anti-hypertensives and referral into practice based on the risk profiles for gender, age and deprivation;
- There is variation between CCGs in prescribing and referral into practice, but this appears to be in line with the population risk profile, although the lower statin prescribing in Southern Derbyshire may be a reflection of GP approaches;
- There appears to be an inequity of adherence to Statins in the older age groups, and for men in particular.
- **The level of adherence to statins should be investigated further – for all patients prescribed but in particular the older age groups and men, and in North Derbyshire CCG.**

5 CCG SUMMARY QUILTS

This section provides an overview of uptake and outcomes of attendance by CCG. As before, analyses are based on recorded data and this should be noted when interpreting any results, but as an area for further investigation, rather than the sole reason for any differences.

Table 30 shows the CCG summary of access and uptake across CCGs by Gender, Age and Deprivation.

Erewash CCG and Hardwick CCG have significantly lower uptake rates, but potentially the highest level of need within their population. Lower uptake is likely to be a reflection of the population these CCGs serve, with evidence from the literature review that more deprived groups, those with more risk behaviours and higher clinical need, and younger age groups are less likely to attend. Increasing uptake overall and in these populations should be a priority within these CCG's.

North Derbyshire CCG and Southern Derbyshire CCG have higher uptake rates overall, but there is still inequity of attendance in men and this should be prioritised. Although Southern Derbyshire CCG has much higher uptake in the younger age groups, it is lower than average in the older age groups and this could be increased.

Uptake in the most deprived quintiles needs to improve across all CCGs. Although overall uptake in North Derbyshire CCG and Southern Derbyshire CCG is higher, deprived areas within the CCGs such as Chesterfield and Heanor are lower than average.

Table 30 – CCG Summary of Access and Uptake by Gender, Age and Deprivation

Baseline Population Analysis					
	Total Derbyshire County % (Number)	Erewash CCG % (Number)	Hardwick CCG % (Number)	North Derbyshire CCG % (Number)	Southern Derbyshire CCG % (Number)
Eligible	246772	32080	32072	102652	79968
Invited	63% (154724)	72% (23203)	78% (25166)	69% (70874)	44% (35481)
Assessed	62% (95543)	58% (13541)	57% (14405)	63% (44645)	65% (22952)
Assessed Females	64% (46306)	59% (6500)	59% (7202)	65% (22036)	68% (10568)
Assessed Males	60% (49237)	57% (7041)	55% (7203)	61% (22609)	62% (12384)
Assessed by Gender, Age and Deprivation					
F 40-44	40% (3002)	28% (462)	36% (553)	45% (1285)	48% (702)
F 45-49	49% (4892)	44% (814)	46% (947)	50% (2259)	53% (872)
F 50-54	55% (6604)	52% (949)	52% (1168)	55% (3281)	60% (1206)
F 55-59	63% (7549)	63% (1062)	58% (1169)	63% (3734)	65% (1584)
F 60-64	73% (8163)	73% (1105)	70% (1120)	74% (3884)	73% (2054)
F 65-69	80% (8768)	84% (1225)	80% (1215)	81% (4089)	78% (2239)
F 70-74	87% (7328)	92% (883)	88% (1030)	88% (3504)	84% (1911)
M 40-44	35% (3770)	30% (602)	34% (734)	36% (1628)	40% (806)
M 45-49	45% (6907)	43% (1100)	40% (1124)	47% (3327)	45% (1356)
M 50-54	53% (8668)	55% (1381)	50% (1289)	53% (3892)	54% (2106)
M 55-59	62% (8276)	64% (1197)	60% (1195)	63% (3823)	60% (2061)
M 60-64	72% (7607)	74% (1071)	71% (1018)	73% (3546)	68% (1972)
M 65-69	82% (7612)	85% (944)	85% (999)	82% (3461)	80% (2208)
M 70-74	95% (6397)	98% (746)	99% (844)	94% (2932)	94% (1875)
Quintile 1	55% (11409)	51% (1137)	54% (4432)	55% (4905)	63% (935)
Quintile 2	58% (19185)	52% (3032)	57% (4868)	61% (7846)	61% (3439)
Quintile 3	62% (23036)	58% (3164)	59% (3197)	63% (9209)	65% (7466)
Quintile 4	65% (24266)	64% (3466)	64% (1310)	64% (13534)	68% (5956)
Quintile 5	69% (16467)	64% (2653)	68% (434)	70% (8544)	70% (4836)
Comparison to Derbyshire Average	Signficantly Lower		Signficantly Higher		

Table 31 shows the CCG summary of outcomes of attendance across CCGs.

Erewash CCG has a higher percentage recorded as obese and as current smokers. Hardwick CCG has a higher percentage recorded as obese, current smokers, inactive, raised BG and raised BP. This reflects the population needs analysis, and is despite having a lower uptake in the more deprived groups which would be expected to have higher prevalence of risk factors. This supports the recommendation that focus in these areas are prioritised.

Erewash CCG generally has better levels of recorded outcomes for those that attended with identified risk factors but there may be potential to increase the percentage of overweight/obese that are offered referral to weight management services. However, the lower percentage of referrals recorded as declined may infer that they are only offering to those considered appropriate for referral.

Hardwick CCG generally compares well to the average for recorded outcomes for those that attended with identified risk factors, but is lower for the percentage of obese and smokers given advice. This could be improved, either by ensuring everyone receives advice or through better recording.

If uptake were to be improved within these CCGs a high percentage of attendees would potentially receive a positive outcome.

Table 31 – CCG Summary of Outcomes of Attendance

Outcomes Analysis					
	Total Derbyshire County % (Number)	Erewash CCG % (Number)	Hardwick CCG % (Number)	North Derbyshire CCG % (Number)	Southern Derbyshire CCG % (Number)
Assessed	94273	13432	13604	44278	22959
% Overweight	41% (39073)	41% (5466)	42% (5679)	41% (18117)	43% (9811)
% Obese	24% (22727)	26% (3505)	30% (4032)	22% (9805)	23% (5385)
% Obese Lifestyle Advice	74% (16856)	88% (3073)	70% (2816)	73% (7118)	71% (3849)
% Obese Weight/Diet Advice	57% (12886)	73% (2570)	58% (2320)	51% (4957)	56% (3039)
Assessed Overweight and Obese	61800	8971	9711	27922	15196
% Overweight and Obese Offered	7.8% (4804)	5.2% (463)	7.2% (700)	6.4% (1779)	12.3% (1862)
% Declined of Total Offered	77% (3676)	49% (226)	69% (480)	78% (1395)	85% (1575)
Weight Referral - Obese	962	214	186	330	232
% Assessed Obese Referred	4.2% (962)	6.1% (214)	4.6% (186)	3.4% (330)	4.3% (232)
Recorded Inactive	12% (7967)	12% (1087)	19% (1655)	10% (3251)	11% (1974)
Inactive Brief Intervention	78% (6230)	100% (1087)	92% (1529)	67% (2177)	73% (1437)
Inactive Offered Exercise Referral	23% (1803)	10% (109)	49% (812)	14% (461)	21% (421)
Inactive Referred	86% (1551)	90% (98)	93% (757)	85% (394)	72% (302)
Inactive Declined Referral	14% (252)	10% (11)	7% (55)	15% (67)	28% (119)
Current Smoker	17% (15755)	18% (2429)	21% (2897)	16% (6868)	16% (3561)
Stop Smoking Advice	84% (13202)	91% (2210)	80% (2323)	85% (5840)	79% (2829)
Stop Smoking Referral	6% (1002)	9% (219)	6% (162)	6% (381)	7% (240)
Brief Alcohol Screen	87% (82434)	90% (12084)	99% (13434)	84% (37131)	86% (19785)
Full Alcohol Screen (% of Brief)	14% (11462)	27% (3222)	16% (2087)	8% (3080)	16% (3073)
Advice Given (% of Full)	38% (4386)	26% (841)	38% (790)	50% (1537)	40% (1218)
Raised BP (% of Measured)	32% (26537)	30% (3917)	34% (4045)	31% (11488)	34% (7087)
Raised BP Follow Up	52% (13186)	53% (1963)	56% (2259)	52% (5769)	49% (3195)
Raised BG (% of Measured)	14% (4863)	7% (613)	17% (792)	17% (2582)	12% (876)
Raised BG Follow Up	33% (1497)	33% (193)	34% (251)	32% (793)	33% (260)
Low eGFR (% of Measured)	6% (1404)	6% (342)	6% (213)	6% (550)	4% (299)
Low eGFR Follow Up	11% (153)	11% (36)	8% (18)	13% (69)	11% (30)
Prescribed Statins within 2m	3.4% (3213)	3.7% (492)	4.2% (575)	3.3% (1454)	3.0% (692)
Declined Statins at any time after	1.4% (1292)	1.1% (151)	0.9% (119)	1.7% (748)	1.2% (274)
Prescribed Antihypertensives any time	4.4% (4152)	4.4% (594)	5.4% (729)	4.2% (1877)	4.1% (952)
Referred to GP or Practice Nurse	20% (18593)	23% (3048)	31% (4275)	16% (7177)	18% (4093)
Hypertension (% of Assessed)	2.0% (1913)	2.1% (285)	2.4% (331)	1.8% (810)	2.1% (487)
Diabetes (Any) (% of Assessed)	0.6% (546)	0.6% (84)	0.8% (103)	0.5% (234)	0.5% (125)
CKD (1-5) (% of Assessed)	0.1% (138)	0.3% (37)	0.1% (13)	0.1% (55)	0.1% (33)
Comparison to Derbyshire Average	Signficantly Lower/Worse		Signficantly Higher/Better		

North Derbyshire CCG may need to improve the percentages of attendees that are offered referral to stop smoking, weight management and exercise services. The percentage of attendees recorded as receiving a full alcohol screen is lower than average, but the population needs analysis indicates a higher level of need relating to alcohol and this may need to be improved. The CCG has the highest percentage of recorded non-adherence to statins.

Although Southern Derbyshire CCG has higher uptake, outcomes of attendance do not appear to compare well to the average. The percentage of patients with identified risk factors of overweight/obese, inactivity and smoking given advice is lower, and decline rates of referral for weight management and exercise appear to be higher. The percentage recorded with a brief alcohol screen is lower, but the percentage that then has a full screen is higher suggesting a level of need. There is a high percentage identified with a raised BP but the CCG has the lowest percentage with a recorded follow up and lower prescribing of statins. Given the population needs analysis which highlighted higher overweight prevalence, alcohol related admissions, and higher premature CHD mortality these could all be improved.

6 RECOMMENDATIONS

Based on the equity profile analysis it is recommended that specific actions are identified, prioritised and agreed with the JSNA Board and partners in the following areas:-

Improving Data Quality:-

- Data recording will have improved over the course of the five years of implementation, but it should be ensured that all aspects of a health check are fully recorded and correctly coded using the most up to date electronic system templates;
- Estimated risk score is based on recorded measurements, and where possible it needs to be ensured that a targeted approach to invitation is not at a cost to populations with missing data such as ethnic minority groups and females with potentially unknown risk factors. The literature review highlighted that for targeted screening to be effective in both coverage and cost requires up to date quality data.

Increasing Uptake of Invitation:-

- There needs to be a focus by practices on identifying and reviewing people that have already been offered an invitation but not attended, starting with the identified priority groups and those invited during the early stages of the programme;
- Wider actions on increasing uptake of offer in specific populations e.g. men, deprived populations, younger age groups need to be identified and agreed;
- Reasons for inequity of access and uptake in those with learning disabilities and severe mental illness need to be investigated;
- CCGs differ in the populations they serve and those identified as having lower uptake, so tailored actions should focus on the specific groups identified within the equity profile analysis;
- Operational differences between geographical areas with similar numbers of invitations but contrasting uptake rates should be investigated and used to inform where service provision could be changed for different populations to improve uptake rates.

Outcomes:
There are inequalities in the outcomes of a health check for people with identified lifestyle risk factors that suggest inconsistencies in the health check process, the quality, or the data recording which need to be investigated as they could potentially lead to inequity:-

- Screening for and/or recording of alcohol intake and physical activity levels need to be improved for all attendees;
- The percentage of people given advice or receiving a brief intervention for weight, exercise, smoking and alcohol intake varied significantly within each service by either gender, age, deprivation or CCG;
- There appear to be inequalities in referral to all of the lifestyle services that could that could result in inequity, and the reason for this is not known and needs to be further investigated; for example, data recording, availability of services, lack of knowledge, practitioner perspective;
- There are also inequities in the uptake of referral to all of the lifestyle services by gender, age and deprivation which need to be addressed.

Prescribing, Disease Diagnosis and Follow up:-

- The difference in statin prescribing between CCGs, and higher decline rates in men and older age groups could be further explored;
- The significantly lower number of patients than expected diagnosed with CKD, and differences by CCG, should be investigated;
- The apparently low percentage of people with a raised blood pressure, blood glucose or low eGFR measurement with a further test within 6 months should be investigated.

7 KEY ACTIONS

1. **Data Quality:-**
    a. The practice system template for recording a Health Check will be updated to ensure it captures all aspects of the process, is intuitive, and not restrictive for users;
    b. The importance of using the correct template and full completion will be communicated to all providers of Health Checks through existing meetings and briefings.

2. **Improving Uptake:-**
    a. The Derbyshire Customer Segmentation Model will be used to identify the population characteristics of geographical areas with low uptake to enable appropriately targeted service design and effective social marketing techniques based on the evidence of what works in different groups;
    b. A rapid survey of HCA's and GPs will be conducted to investigate provider perspectives on reasons for non-attendance and non-uptake of referrals and how this could be improved, patient understanding of the process and feedback following attendance, and areas for improving the programme as a whole;

c. A cohort of service users from priority populations that did not respond or did not attend their appointment will be surveyed through telephone interviews or focus groups to identify whether an alternative approach could change this.

3. Reducing Variation in Outcomes:-

a. Actions identified under data quality regarding design and use of the template will help to ensure attendees receive all aspects of a health check and that variation in outcomes is not due to process;
b. There will be a focus on highlighting the requirement to undertake alcohol screening for all attendees;
c. The rapid survey results will be used to identify the service, practitioner, and patient related reasons for differences in referrals and prescribing.

4. Communication of Results:-

a. Results, recommendations, and identified actions will be taken to the JSNA board for agreement;
b. A CCG level summary will be produced for communication to commissioners and practices to agree local actions and priorities.