

Opportunistic Health Checks in a Retail Environment

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ABSTRACT:

Cardiovascular disease remains common and accounts for many deaths, but primary cardiovascular risk factors are consistently under-diagnosed in the UK. NHS Health checks are being implemented nationally in the next five years targeting 40 to 74 years old and many Primary Care Trusts have commissioned health checks to be carried out opportunistically as an outreach programme in public places to aid uptake and improve access. However there is little published evidence on the effectiveness and subsequent follow up rate in such model.

This service evaluation verifies the effectiveness of primary cardiovascular screening in a supermarket setting in South East London. Eight consecutive Saturday clinics were carried out at the entrance of a local supermarket offering opportunistic health screening including blood pressure, random glucose, body mass index and screening spirometry. The primary outcomes are rate of uptake of the service, the proportion of participants with previous undiagnosed cardiovascular risk factors that were identified from the screening, and subsequent rate of follow up.

Over the 8 weeks period, 1024 participants (male 457 (44.6%), females 567 (55.4%)) undertook the screening. 422 participants (41.2%) required follow up for abnormal readings. 325 (76.4%) of these were abnormal readings in participants with previously unknown disease (raised blood glucose: 95 (9.3%) participants, raised blood pressure: 172 (16.8%), FEV1 less than 80%: 93 (9.1%). Using the NHS health check age range 34.3% of raised blood pressure and 38.9% of raised blood glucose would not have been picked up. The cost per patient was £19, the cost per abnormal finding was £43.66.

Opportunistic health screening targeting particular groups of individuals appears to be highly effective in identifying significant pathology. Main limitation of this pilot was that cholesterol measurement was not performed and therefore full cardiovascular risk assessment could not be offered.

KEYWORDS:

Health screening, opportunistic, cardiovascular disease, cancer screening, outreach, health check, supermarket

KEY MESSAGE:

Opportunistic health check in retail environment is able to reach traditionally hard-to-reach groups. Follow up rates post opportunistic consultation is high.

WHY THAT MATTERS TO ME:

As cardiovascular disease continues to increase in disease burden and mortality, primary care physicians should be thinking more creatively in offering disease prevention and subsequent health promotion.

ETHICAL APPROVAL:

Not required for service evaluation.

INTRODUCTION

Cardiovascular disease currently affects the life of over 4 million people in England¹, causing 36% of deaths, over 170,000 a year. Cardiovascular disease is responsible for twenty percent of all hospital admissions¹. Data from NHS comparators show an average of 50% under-diagnosis rate of major cardiovascular risk factors². Provisional modelling by the Department of Health in England suggests that up to 9,500 heart attacks and strokes and 2,000 deaths could be prevented each year by primary cardiovascular screening and subsequent risk management in people between the ages of 40 and 74. Assessment contains a brief history including family history, examination of blood pressure and blood test of glucose and cholesterol. Screening carried out in supermarkets showed promising results with high follow up rates.³ Perceived benefits of increased uptake of primary cardiovascular risk factor screening should lead to earlier intervention, lifestyle changes and ultimately reduce morbidity and mortality. Health screening can then be incorporated into a wider context of health promotion and disease prevention. The aim of this service evaluation is to analyse the effectiveness of primary cardiovascular screening in a supermarket setting in Thamesmead, South East London.

METHODS

Health checks took place at the entrance of a supermarket in South East London on eight consecutive Saturdays between 10:00 to 14:00 with three clinicians present, targeting participants aged 40 to 74 years. The pilot was a self-referral service where participants were recruited as they walked through the store. They were approached by trained staff, the objective of the consultation was explained and consent obtained. Participants completed an initial screening questionnaire (relevant past medical history, smoking status, age, family history, GP) and weight and height were measured. The participants were then streamed to the next available clinician. Blood pressure, FEV1 (for smokers) and finger prick random glucose were performed. The readings were interpreted by clinicians, and advice setting out the individual's level of vascular risk was given. Those who had been identified as at elevated risk for cardiovascular disease or chronic obstructive pulmonary disease (COPD) were advised to see

their registered GP for follow up. A copy of the results was given to the participant, an additional copy was faxed to GP in the next working week. Participants were then asked to complete a Satisfaction Questionnaire. Participants who were found to benefit from lifestyle advice were immediately signposted to on-site health trainers for further tailored programme.

Data on follow up rate was collated by contacting registered practices at six months to see whether participants who were advised to see their GP have attended, investigations performed and whether medical treatment was initiated.

Random blood glucose via finger prick test was performed due to the timing of the pilot (between 10am to 2pm). No assumption of fasting glucose was made or enforced. There is no current established guidance of what level of random serum blood glucose is considered to be at risk of diabetes or impaired glucose tolerance. The service provider has chosen that any level higher than 7.8 is raised and participant were advised to seek further follow up with own registered GP with the rationale that this is the level for impaired glucose tolerance of oral glucose tolerance test.⁴ Blood pressure higher than 140mmHg systolic or 90 mmHg diastolic (or both) is raised⁵ and the participants were advised to follow up with own GP for further readings and investigations. Handheld spirometry was performed for smokers, reading of FEV1 less than 80% of predicted based on the participant's age, gender, height and ethnicity were explained to be reduced. The findings were then illustrated with the support of a visual tool of effect of smoking on lung age with emphasis on health gain if participant embarked on smoking cessation.

Data were collated into an excel spread sheet by an administrator on the next working day with each participant given a number to maintain anonymity. The data was then evaluated by the Public Health Department in NHS Greenwich and separately by authors.

RESULTS

The Health checks took place over eight Saturdays (16th May 09 to 5th July 09) between 10am and 2pm and 1024 participants were seen, 457 (44.63%) males and 567 (55.37%) females. The

average number of patients seen was 128 per session (126 to 129). Overall, 663 (64.7%) participants were between the ages of 40 to 74 years, within the NHS Vascular checks target age range. No participants were turned away or refused service, no participants have been seen more than once. 317 (31%) participants were younger and 44 (4.3%) participants older than the NHS target range (figure 1). Overall, 434 (42.4%) participants were overweight (BMI of 25 to 29.9), 284 (27.7%) were obese (BMI 30 to 39.9), 35 (3.4%) had a BMI over 40.

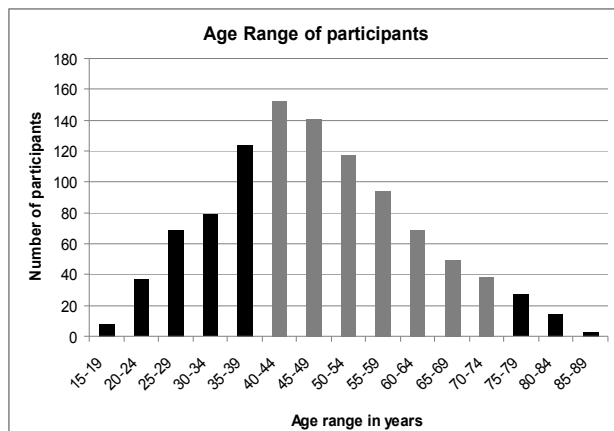


Figure 1: Age range of participants (grey: NHS health check target, black: outside NHS health check target)

In 422 participants (41,2%), 458 abnormal readings were measured (38 participants (3.7%) had more than one abnormal reading). 131 of the abnormal readings were in 97 participants with previously known conditions. 327 abnormal readings were found in 325 (31.8%) participants with previously undiagnosed conditions.

Elevated blood glucose

There were 122 participants (11.9%) with elevated random serum blood glucose higher than 7.8 mmol. Of these, 30 were known to be diabetic (24.5%), while 92 participants were not previously diagnosed (75.5%). Among the participants with previously undiagnosed high blood glucose 37 were outside the NHS health check age range (figure 2), especially from the ethnic group White, Black Caribbean, Black African and Pakistani.

Elevated blood pressure

There were 248 participants (24.2%) with elevated blood pressure. Of these 173 participants (69.8%) had no past medical history of hypertension, while

75 participants (30.2%) were known to be hypertensive (out of 189 participants with past medical history of hypertension (39.7%)). Among the participants with previously undiagnosed hypertension 59 were outside the NHS health check age range (figure 2). 47% of the ethnic group Black African with elevated blood pressure measurements were younger than 40 years (9.2% of all Black African screened).

Reduced FEV1 (less than 80% predicted)

In total, 357 hand held spirometry were performed, 193 of these were self-disclosed smokers, the other 164 participants had seen lung age being advertised on posters or leaflets or seen other participants having this test performed and have requested to have it done. However 14 (6.8%) smokers declined this particular intervention. There were 88 participants (8.6%) with reduced FEV1 values. Of these 26 participants (29.5%) were known to suffer from COPD or Asthma, while 62 participants (70.5%) had no past medical history of obstructive lung disease. Among the participants with previously undiagnosed respiratory conditions and a decreased FEV1, 18 participants were outside the NHS health check age range (figure 2).

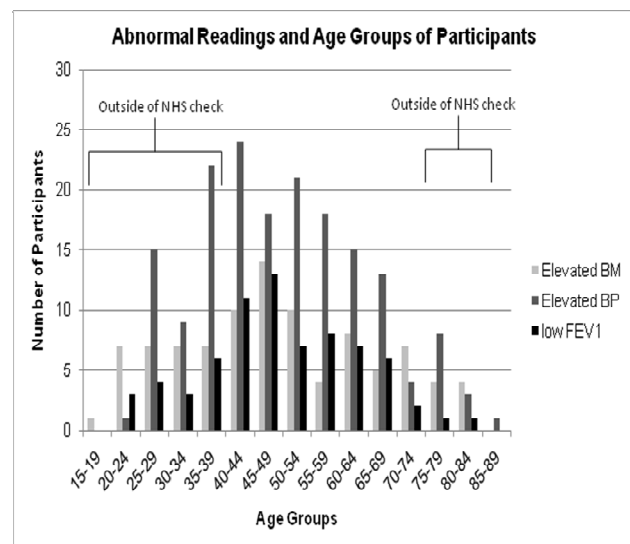


Figure 2: Abnormal readings and age group of participants with previously undiagnosed conditions

Cancer screening

Questions were asked as to whether the participants recall their screening as being up to date. Out of those who were eligible for cancer screening, 42 of 203 (20.7%) females from aged 50

to 70 remembered breast screening to be out of date, 130 of 503 (25.8%) women aged 20 to 64 remembered cervical cancer screening to be out of date. 99 of 129 participants (76.7%) aged 60 to 69 recalled that their bowel screening were out of date (figure 3)

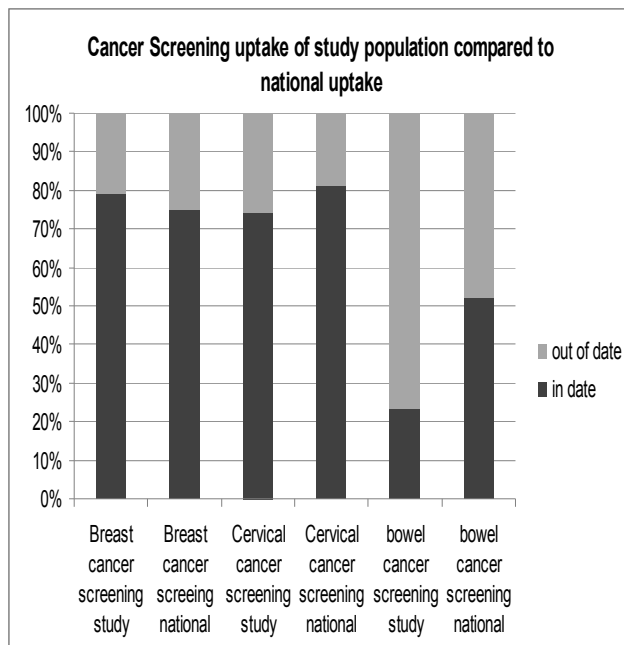


Figure 3: Cancer screening uptake of pilot population compared to national cancer uptake^{6,7}

Follow up

Of the 422 participants with abnormal readings, 41 (9.7%) were not registered with a GP or have left the practice that they were registered. We were not able to trace whether they have subsequently received follow up elsewhere. Of the 97 participants with raised readings in previously known conditions such as diabetes, hypertension, COPD and asthma, 84 participants (86.6%) have had a follow up with their GP at six months, 82 (84.9%) had further investigations including blood tests, and 64 (66.0%) had their medications amended. Of the 325 participants with previously undiagnosed condition and abnormal readings, 32 (9.8%) were not registered with a GP or have left the practice. At six months, 210 (64.6%) saw their GP as advised, of these, 208 (64.0%) had further investigations, and then 155 went on to have medications (47.7%). Overall, 83 (25.5%) of those who were advised to have follow up did not see their GP at six months. Their registered GPs were aware of these readings and have logged these onto their medical records (Figure 4).

Cost

The total budget for this project was £19,998, so each health check cost £19.53. The price for each participant with abnormal readings was £47.38, for participant with previously unknown conditions £61.53.

Participants Feedback

All participants were approached to complete a post consultation feedback, 860 (83.98%) participants completed the anonymous feedback form. 80.2% were very satisfied, 8.0% satisfied, 1.1% neither satisfied nor dissatisfied, 1.0% dissatisfied and 9.7% very dissatisfied respectively. The dissatisfied and very dissatisfied participants main issues were a lack of privacy, the consultation tables were next to each other.

DISCUSSION

This service evaluation was performed in order to analyse whether outreach model of health screening were effective. Literature search showed only one published study on cardiovascular screening in a supermarket setting³. Under-screening of cardiovascular risk factors has been documented in England², USA⁹ and United Arab Emirates¹⁰. Survey from NHS Comparators² revealed significant under-diagnosis of cardiovascular disease across England with an average of 48% of under-diagnosis of hypertensive patients¹¹ and under-treatment of 26.1% hypertensive patients with blood pressure remaining higher than 150/90mmHg across London¹¹. There is a similar under-diagnosis of obesity of 58% across England, 62% across London and 28% of under-diagnosis of diabetes in London². In this pilot, the blood pressure of 39.6% of known hypertensive patient was not adequately controlled.

Follow up rates were slightly higher than in the study of Strychar et al³. This may be attributed to supporting staff were briefed to particularly invite the rather “hard to reach” population involved (overweight or obese, Black African man) as identified by service provider’s Joint Strategic Needs Assessment¹². That is also part of the explanation of higher than national rate of overweight and obese people (73.5% locally, 61% nationally⁸), higher proportion of ethnic minorities, in particular, Black African and Black Caribbean participants. The 1024 participants seen were more than the 400 originally expected. Time

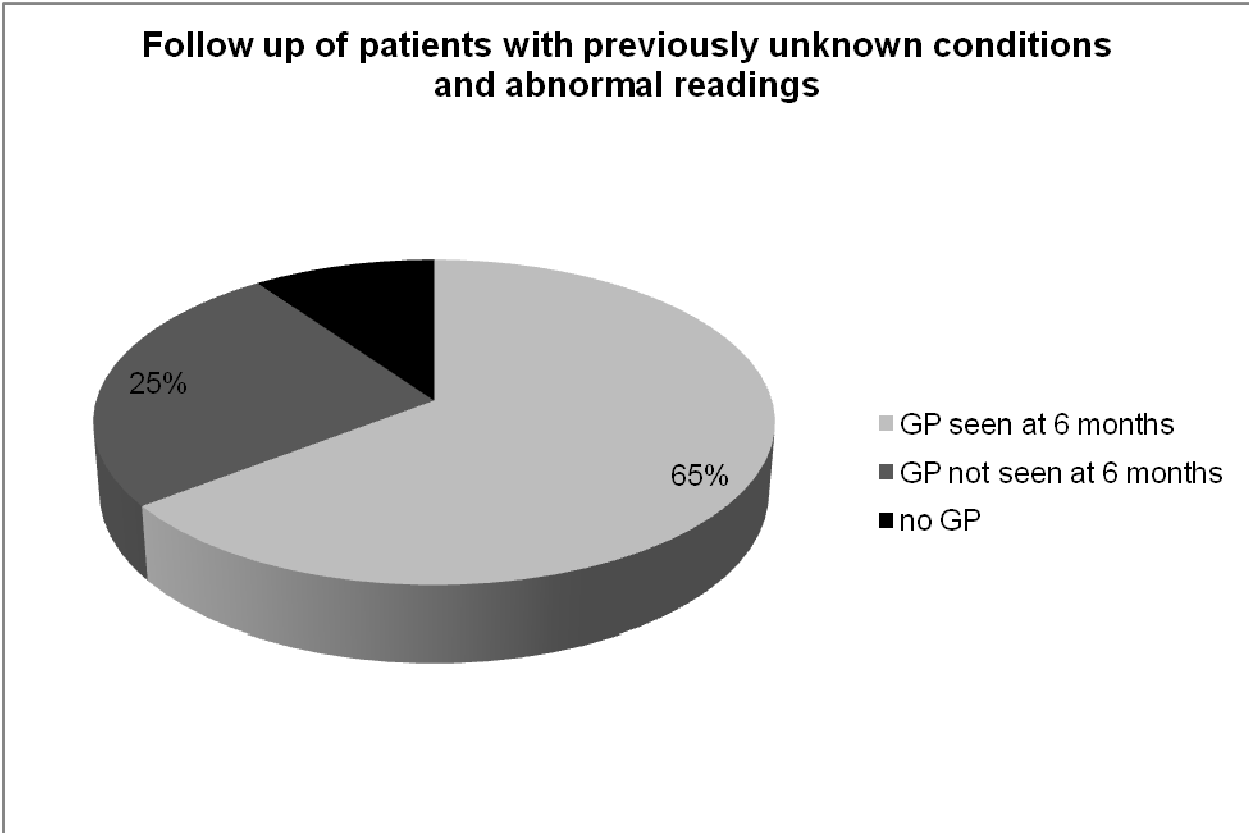


Figure 4: Follow up of patients with previously unknown conditions

required for each consultation was shortened mainly due to supporting staff took information from participants prior to consultation with clinicians.

This pilot identified a high proportion of participants with abnormal readings and no past medical history (31.7%). If the NHS health check age range¹ is used for screening, 35% of people with previously undiagnosed conditions would have been missed, mainly younger than 40 years of age. There was a large gap in patients eligible for bowel screening in between the local population and the national average. Commissioners can use the data for interventions to increase the uptake locally by means of social marketing.

Due to the funding limitation, random glucose was chosen as a screening tool for diabetes. A better choice of screening for this outreach model would be using near patient testing of Hba1c. Also due to limitation of funding, a full cardiovascular screen could not be performed due to the lack of cholesterol testing. This would however, lengthen the time of consultation as an average near patient testing of cholesterol including total cholesterol

and HDL takes at least 10 minutes. Another limitation on the data is participants' disease state is based on their recollection and disclosure of past medical history which may be affected by recall bias. The nature of the outreach model meant that participants with known conditions including hypertension (189 participants, 18.5%), diabetes (77 participants, 7.5%), MI/CHD (36 participants, 3.5%) and previous CVA (10 participants, 0.97%) had a health check performed. However for the NHS Health check, it was clear that this would be only a primary cardiovascular prevention and these participants would not have been eligible.

CONCLUSION

This pilot helped to inform commissioners about the effectiveness of opportunistic health check. The outreach model is particularly effective in targeting groups that have been locally identified to have higher health needs. There was a high number of abnormal readings in previously healthy individuals. A high proportion may be missed if the age range indicated by NHS Health Checks were followed in this particular area. Participants were very satisfied with the health checks and the follow up rate was high.

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Submitted 28 January 2011, comments to authors 22 March 2011, revised 12 April 2011, accepted for publication 14 April 2011.