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## **Evaluation of NHS Health Checks provided by community pharmacies**

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## **Abstract**

### Background

Community pharmacy is a potentially useful, easily accessed provider of NHS Health Checks. Little published work has reported outcomes or sought views of pharmacy Health Check attenders. This evaluation assessed findings of pharmacy Health Checks, plus subsequent attendance after referral to general practices and obtained client views.

### Method

Mixed methods including: data abstraction from Health Check and practice records, questionnaire to all attenders and interviews with sample of questionnaire respondents.

### Results

Data from 190 pharmacy Health Checks, performed in four pharmacies, showed the majority of attenders (58%) were female, 53% white, with 80% aged under 55. 75% had at least one modifiable cardiovascular risk factor, 8% had a CVD risk score of  $\geq 20\%$ ; 30% were referred to their practice for further tests/consultation, but only half of these attended. Lifestyle advice was offered to 74% and referral for support with changing lifestyle accepted by 20%. Survey respondents (66) were unrepresentative and fewer had modifiable risk factors. Many indicated making lifestyle changes and their views on pharmacy Health Checks were positive, particularly reflecting accessibility.

### Conclusion

Pharmacy NHS Health Checks reach people with modifiable risk factors, identify those requiring further investigation and refer appropriately. Greater emphasis and encouragement are required to act on referrals if Health Checks are to maximise benefits.

Word count 210

## Background

Community pharmacies, largely due to their accessibility and location in areas of high deprivation<sup>1</sup>, have been viewed as potentially good venues for providing services designed to identify new cases of cardiovascular disease (CVD).<sup>1</sup> A systematic review of these services found evidence to support case finding for lipid management.<sup>2</sup> Further reviews have concluded that although there is insufficient evidence to determine whether or not pharmacy 'screening' activities (e.g. blood pressure measurement) are an effective use of resources,<sup>3</sup> there is considerable evidence to support pharmacy's role in services around CVD prevention.<sup>4</sup> In England, three studies reported successful determination of CVD risk and provision of lifestyle information.<sup>5-7</sup>

Awareness among the general public of such services is limited and their expectations of receiving advice about lifestyle as opposed to medicines from pharmacies are low.<sup>8,9</sup> An Australian study found the general public felt pharmacists had a limited role in CVD diagnosis and, even though most believed pharmacists were capable of providing advice on lifestyle changes (e.g. weight-loss, smoking and alcohol intake), few sought assistance from a pharmacy for these issues.<sup>10</sup> Public surveys in both England and Scotland show similar findings.<sup>11-14</sup>

The Department of Health in England included community pharmacies as a provider of the NHS Health Check programme. This national programme is designed to assess an individual's risk of developing CVD, stroke, diabetes or chronic kidney disease and targets the entire population aged between 40 and 74 years.<sup>15</sup> The NHS Health Check consists of questions about relevant lifestyle factors and family medical history, plus measurement of height, weight, blood pressure, cholesterol and where appropriate / or diabetes trigger is met, glucose levels.<sup>15</sup> Attenders must be given individualised advice to motivate them to make necessary lifestyle changes to manage risk.<sup>15,16</sup> Attenders at pharmacy Health Checks must also be referred appropriately for follow-up by their GP practice and/or for lifestyle support.

Commissioning of pharmacy NHS Health Checks is within the remit of Local Authorities.. One early evaluation reported that pharmacists identified people with high CVD risk and many with modifiable risk factors.<sup>16</sup> Attenders at pharmacy Health Checks were generally satisfied with the service,<sup>16</sup> indeed more so than general practice attenders.<sup>18,19</sup> Other studies have shown that most pharmacists feel confident in their ability to provide Health Checks,<sup>20</sup> but there are inevitably some barriers to involvement.<sup>21</sup> However, no studies have assessed the frequency of lifestyle referrals being accepted, follow-up attendance at practices or sought information from attenders on lifestyle change following pharmacy Health Checks. Indeed, few studies have reported on referrals to

general practices and attendance at these following pharmacy services generally and for CVD screening in particular.<sup>22,23</sup>

The aims of this study were to determine the frequency of lifestyle advice and referrals following a pharmacy NHS Health Check, attendance at general practices for follow-up, plus views of attenders on the service and self-reported lifestyle change.

## **Methods**

As an evaluation of a service conducted on behalf of its commissioning body, ethics approval was obtained from Medway School of Pharmacy (University of Kent;ref E0113) The Health Check processes are defined by national guidance.<sup>15</sup> Pharmacists were required to question clients and measure and record all relevant parameters, provide brief healthy lifestyle advice and support, and refer to a GP, dependent upon the level of risk determined. All consultations were in a private consulting room and lasted approximately 30 minutes.

The evaluation involved mixed methods: data abstraction from Health Check records and from medical records of all attenders following the Health Check, plus a questionnaire survey of all attenders and telephone interviews with a sample of survey respondents. The interview allowed findings from the questionnaire to be explored further, such as reasons for lifestyle changes participants had made as a result of the Health Check.

### *Setting and Inclusion Criteria*

Four community pharmacies within a Clinical Commissioning Group (CCG) in London were selected based on previous high frequency of recruitment to NHS Health Checks. The CCG sent letters to registered patients inviting attendance for an NHS Health Check at either a pharmacy or their GP. For all those receiving a pharmacy Health Check, a summary sheet containing all data obtained was sent to the practice. Standardised referral letters were provided by the CCG for pharmacists to refer patients to their general practice<sup>15</sup>. The onus was then on practices to invite patients for further testing/appointments. All clients receiving a pharmacy Health Check within the study period (February to August 2013) were included.

### *Instrument Development*

A tool was developed using the national service specification<sup>15</sup> and the local standard operating procedure to facilitate data collection from records of the Health Checks and medical records. Data

included results of all measurements taken in the pharmacy, referrals made to the GP practice for further tests/consultations, offers made and accepted of referral for support with lifestyle change and outcome data from the patients' medical notes.

The questionnaire used for the survey was developed by university researchers from instruments used in previous studies,<sup>16, 18</sup> and included additional questions, covering the specific requirements of the CCG. The content validity of the instrument was assessed by three CCG staff. It determined recall and understanding of the Health Check findings, immediate outcomes, actions taken and views on the experience, plus basic demographic information enabling representativeness to be assessed. An interview schedule was developed which allowed further exploration of reasons for attending for an NHS Health Check, its perceived usefulness and actions taken as a result, plus views of pharmacies as a venue for delivering Health Checks and pharmacists providing them.

#### *Health Check findings, initial outcomes and follow up*

Pharmacists recorded Health Check findings electronically. These were transferred to the client's GP practice and placed in their medical record. Clients with systolic BP  $\geq 140$  mmHg, diastolic BP  $\geq 90$  mmHg, cholesterol  $\geq 7.5$  mmol/L, those triggering the need for a diabetes screen (BMI and/ or BP above threshold levels)<sup>15</sup> or with an estimated 10-year CVD risk of  $\geq 20\%$  were referred to their practice for further review/measurement. Pharmacists recorded whether advice was provided on alcohol intake, physical activity, smoking cessation and weight management, whether referrals to other healthcare professionals for follow-up or lifestyle support were offered and whether clients accepted these. Data on follow-up appointments were extracted from medical records by one CCG staff member and combined with the electronic records.

#### *Views of Health Check attenders*

Ready-printed address labels were provided by the CCG to the University for those receiving a Health Check at a participating pharmacy, all of whom were sent a questionnaire within four weeks of their Health Check. This was accompanied by a letter on CCG-headed notepaper, an information sheet and a pre-paid envelope for return. One mailed reminder was issued from the University after three weeks. Questionnaires included an invitation for a semi-structured telephone interview. All who agreed to this by providing written consent and contact details were telephoned and verbal consent for interview sought. Interviews were conducted by one member of the evaluation team, using information in the participant's questionnaire to guide the discussion.

## *Data Analysis*

Data from Health Checks, medical records and survey responses were entered into SPSS v 20. Chi-squared tests were performed to determine differences in demographic characteristics and risk factors between survey respondents and all attenders. Interviews were audio-recorded, with permission, transcribed and analysed thematically, using a framework approach<sup>24</sup>. Two researchers agreed the coding framework, which was developed from the interview guide. Coding was conducted manually to facilitate immersion in the data by one researcher, then checked by the second, ensuring trustworthiness of data interpretation.<sup>25</sup>

## **Results**

### *Demographic details and risk factors*

Data were available for all 190 Health Checks provided by the four pharmacies. The patients were registered with 30 different medical practices. The majority were female (110; 58%), aged 55 or younger (151; 80%) and white, (100; 52.6%). Demographic details of the Health Check recipients are shown in table 1.

Over half had a BMI indicating overweight or obesity and/or a waist measurement greater than the upper limit of normal (58.4% and 50.3%, respectively). Approximately one third (37.4%) had a cholesterol level greater than 5 mmol/L. Twenty-three were current smokers; 16 had stopped in the last 10 years. Raised blood pressure (either systolic or diastolic) was found in 24 (12.6%) and approximately a quarter (43/190) triggered the requirement for further investigation of blood glucose. There were 81 (42.6%), 43 (22.6%) and 20 (10.5%) clients with one, two or three modifiable risk factors respectively and 15 (8.0%) with a calculated CVD risk score >20%.

### *Advice and referrals*

Additional testing requested by pharmacists from the client's general practice is shown in Table 2. Fifty individuals (26.3%) were referred for further tests, most frequently glycated haemoglobin (HbA1c). Requests for further testing appeared mostly appropriate, however more people were eligible for further testing than were referred (Table 2). There were 33 clients (17.4%) referred directly to their GP, mostly because of raised blood pressure (16) and/or high (>20%) CVD risk (13). Most of these (27; 82%) also required additional tests.

The number of clients given lifestyle advice and referrals offered for further lifestyle support is presented in Table 3. At least one form of lifestyle advice was provided to 140 clients (73.7%), 67 (35.3%) received a referral to one or more lifestyle support services and 37 (19.5%) accepted the referral. The most frequent advice given was for exercise, then weight management; 25 (23%) of overweight/obese patients accepted a weight management referral and 18 (16%) a physical exercise referral.

#### *GP attendance*

Of the 50 referred for further tests, only 28 (56%) attended, while of the 33 referred directly to their GP, only two (6%) were recorded as attending, including one with CVD risk score  $\geq 20\%$ . A further 16 did discuss their Health Check results with their GP, 15 of whom had a risk score  $\leq 10\%$ . Overall 28 of the 56 clients (50%) referred to their practice attended. Records showed that practices had sent letters to 11 of those referred, as a reminder to attend.

#### *Views and experiences of attenders*

##### *Survey data*

Sixty-six (35%) clients returned the survey. The majority of respondents were female (68%), young (77%  $\leq 55$  years) and white (70%). Demographic details and self-reported findings from the Health Check are given in Table 1. Questionnaire respondents were similar to the overall population of Health Check attenders in terms of age and gender but included a higher proportion with white ethnicity. The proportion self-reporting having high cholesterol, waist measurement, BMI and overall CVD risk was low compared to the total population of Health Check recipients. Indeed, a high proportion of questionnaire respondents indicated they had good or very good health (46; 71%) a good or very good diet (46; 70) took exercise at least three times a week (38; 57%) and rarely or never drank alcohol (40; 61%). Five (8%) were current smokers; lower than in the overall population of Health Check recipients. Three respondents self-reported overall CVD risk as high, plus a calculated score indicating medium (2) or high (1) risk. Conversely, four respondents reported a score indicating medium (3) or high (1) risk, but two viewed this as OK/low and two did not know the level.

Almost all respondents viewed their experience of the pharmacy Health Check positively, emphasising the accessibility and convenience of the pharmacy setting, although there were some comments which indicates room for improvement (Table 4). Most respondents felt they were given enough time (61; 92%) and the opportunity to ask questions (62; 94%). Only two indicated that they did not understand everything discussed. Six did indicate having unanswered questions, but most of



these had expectations of the Health Check beyond its intended purpose, covering conditions other than cardiovascular health (Table 4).

There were 38 (59%) who could recall their actual CVD risk score and reported it: two reported a score above 20% and five between 10 and 20%. Most respondents (60; 91%) thought their overall CVD risk was average to very low prior to the Health Check. Responses to open questions indicated that most, but not all, respondents had a good understanding of what their cardiovascular risk score meant (Table 4).

Almost all respondents (56; 86%) recalled being given verbal information about lifestyle changes; fewer (36; 55%) receiving written information. Forty-five (68%) reported at least one lifestyle change: 31 (47%) increased exercise, 30 (45%) changed diet, three (5%) reduced alcohol intake and five (6%) reduced or stopped smoking. One had joined Weightwatchers and one claimed to have already lost weight. Eighteen (28%) recalled being advised to go for more testing and 14 (22%) claimed to have attended for these.

#### *Interview Data*

Nineteen interviews were completed (Table 4). Reasons given for using pharmacies were convenience and accessibility, with the need for one visit seen as a major advantage. Generally interviewees indicated that the Health Checks either met or exceeded expectations. Participants suggested that much of the information provided wasn't new, but was useful as a nudge to consider making a change. A minority expressed their view that the information, although appropriate, was fairly superficial and that for a more in-depth conversation about their health they would see their doctor or a nurse. Most had not made any significant lifestyle changes, although two had stopped smoking.

## **Discussion**

### *Main findings of this study*

A high proportion of Health Check attenders had at least one modifiable risk factor, although fewer than 25% had an overall CVD risk score >10%. Over half (58%) had a BMI of  $\geq 25$ , 23% met the criteria for diabetes screening, 13% had raised blood pressure and 12% were smokers. There was thus considerable potential for interventions to improve lifestyle and reduce risk. Pharmacists provided lifestyle advice to 73% of attenders and 20% accepted a referral for lifestyle support.

Questionnaire respondents, although not fully representative of all attenders, confirmed the high levels of advice and referral, and 68% claimed to have made changes to lifestyle as a result of the Health Check. However the proportion of those referred for additional tests who attended was 56% and only two of the 33 (6%) referred to their GP attended. The majority of those who followed up their Health Check with their GP were not those with identified needs. Questionnaire respondents and interviewees had positive views of pharmacy Health Checks, expressed preferences for this venue relating to convenience and considered the information provided useful in helping to make lifestyle changes.

#### *What is already known on this subject*

The NHS Health Check programme in England is the subject of extensive debate.<sup>26,27</sup> There is little evidence supporting the effectiveness of the programme in any setting and concerns that it reaches the 'worried well'. Delivery through pharmacies potentially broadens access,<sup>26</sup> as well as reaching people at high risk and those with potential to benefit from lifestyle change. Pharmacies reach different people from those targeted by general practices including those not even registered with a GP.<sup>6,7, 28</sup> However, attending a Health Check is only beneficial if referrals and lifestyle advice are acted on, and only one study to date has reviewed a sample of medical records to assess attendance,<sup>7</sup> and one sought information on lifestyle change through questionnaires.<sup>16</sup> Little is known about the frequency of lifestyle advice provided at Health Check-type services.<sup>5</sup> Views of Health Check attenders in general have been rarely sought and, although positive views of pharmacy Health Checks are reported,<sup>16</sup> studies in other settings suggest that public understanding of the NHS Health Check may be less than ideal<sup>18,29</sup> and implementing the recommended lifestyle changes difficult.<sup>30,31</sup>

#### *What this study adds*

This is the first UK study to follow up pharmacy Health Check attenders using both medical records and self-report through questionnaires. Subsequent attendance at practices was low and suggests those seeking further advice may be the 'worried well'. However this was not true of the total population of attenders at pharmacy Health Checks. This emphasises the importance of both proactively following up Health Check attenders and the need for linking Health Checks to existing services provided by many pharmacies, such as smoking cessation support and weight management.

Referral mechanisms following pharmacy screening services are poorly described in studies and uptake of referrals infrequently reported, although often low.<sup>22,23</sup> Good referral procedures between

pharmacists and clients' general practices were in place in this locality and there was evidence of practices attempting to bring patients in following referral. The population presenting for a pharmacy Health Check were mostly younger, with perhaps greatest potential to benefit from lifestyle changes and early diagnosis. The failure to act on referral and advice found here thus has implications for the effectiveness of the Health Checks programme. Perceived difficulties obtaining practice appointments, evident from our qualitative data, may have deterred some patients. However it has long been known that overcoming both internal and external barriers is essential for behaviour change.<sup>32</sup> Recent work shows that lifestyle advice provided at Health Checks can confuse and is not necessarily individualised,<sup>30</sup> with internal barriers being a problem, also cited in our study. Research is needed to explore why attenders fail to follow-up on Health Checks and to determine optimal ways of improving this.

#### *Limitations of this study*

This study is small, only four pharmacies, but with clients from 30 medical practices. The data were limited by the completeness of recording in practices, moreover no data were gathered on attendance at lifestyle support services. The response rate to the questionnaire was low at 35%, although similar to a previous pharmacy survey (37%), and higher than a survey of general practice attenders.<sup>16,18</sup> Questionnaire respondents were not representative of all Health Check attenders, having fewer risk factors, thus the high rate of self-reported behaviour change is likely to be overestimated.

#### *Conclusion*

Pharmacies are a suitable venue for providing NHS Health Checks, reaching people with a range of modifiable risk factors for CVD. In this study pharmacy Health Check attenders who responded to the survey were generally satisfied with the process and approximately a fifth accepted a referral for lifestyle change. However the low proportion of those taking-up referrals to their medical practice must be of concern for the NHS Health Checks programme, as these individuals may be most likely to benefit from early diagnosis and treatment.

Word count (3004)

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**Table 1 Demographic details and CVD risk factors for all Health Check recipients as recorded by pharmacists and for survey respondents (missing data excluded from analysis)**

Characteristic	All Patients (n=190)	Survey respondents (n = 66)
Age, years, n (%)		
40- 55	151 (79.9)	51 (77)
56-65	24 (12.7)	8 (12)
65-74	14 (7.4)	7 (11)
Gender, proportion male (%)	80 (42.1)	32 (21)
Ethnicity, n (%)		
White**	100 (52.6)	46 (70)
Black	62 (32.6)	11 (17)
Asian	19 (11.0)	4 (6)
Other or mixed ethnicity	9 (4.8)	5 (8)
BMI*~		
≥ 30 (kg/m <sup>2</sup> ), n (%)	33 (17.4)	
25 - 30 (kg/m <sup>2</sup> ), n (%)**	80 (42.1)	20 (33)
Waist measurement*~		
Mean (SD) (cm)	87.8 (14.2)	
> 94 cm males or 80 cm females, n (%)**	95 (50.0)	14 (26)
Blood Pressure*~		
Raised Blood Pressure, n (%)	24 (12.6)	9 (14)
Total Cholesterol*~		
Mean (SD) (mmol/L)	4.64 (1.2)	
≥ 5.0mmol/L, n (%)**	71 (37.4)	11 (18)
Smoking status		
Never smoked**	147 (79.0)	42 (65)
Current smoker	23 (12.3)	5 (8)
Stopped in the last 5 years	10 (5.4)	13 (20)
Stopped between 5 and 10 years ago	6 (3.2)	5 (8)
CVD risk (n, %)*~		
≥10% <20% (medium risk)	29 (15.4)	5 (9)
≥20% (high risk)	15 (8.0)	2 (4)



BMI, body mass index; SD = standard deviation

~ 2 people did not respond (survey)

\*Self-reported by patients as high

\*\* Significant difference between total population and questionnaire respondents ( $p < 0.05$ )

**Table 2 Additional clinical testing requested by pharmacist referral to general practice (n = 190)**

	Tests requested by pharmacists (% of attenders)	Client attended	Clients requiring additional testing (assessed from medical records)	
			Tests requested	Tests not requested
HbA1c (positive diabetes filter)	43 (22.6)	24	42	6
CKD (raised BP)	23 (12.1)	14	17	7
Fasting cholesterol (CVD risk >20%)	16* (8.4)	9	15*	6
LFT (CVD risk >20%)	15* (7.9)	9	13*	3
Total number of clients	50 (26.3%)	28 (14.7%)	46 (24.2%)	6(3.2%)

\* One patient declined additional testing

CKD –Chronic Kidney Disease

LFT – Liver function tests

CVD – Cardiovascular disease

**Table 3 Lifestyle advice given, lifestyle referrals offered and accepted (n = 190)**

Risk factor	Advice given (% of total)	Referral offered (% of total)	Referral accepted, n (% of referrals)
Alcohol	22 (11.6)	8 (4.2)	1 (12.5)
Smoking	19 (10.0)	11 (5.8)	2 (18.2)
Weight management/ Diet	83 (43.7)	41 (21.6)	25 (61.0)
Exercise	119 (62.6%)	43 (22.6)	18 (41.9)
Overall	140 (73.7%)	67 (35.3%)	37(55.2%)

**Table 4 Quotations from patients illustrating key issues around pharmacy Health Checks**

Issue	Quotation	Source; Patient characteristics
Reasons for using pharmacy	<i>"It was the closest place and very convenient as cholesterol check could be done on site with results available straight away"</i>	Survey; female, Asian, 35-44
	<i>"Because I knew that I'd be able to just get in there and out of there as quickly as possible. It was not going to be you know rigmarole of making appointments and all the stuff that usually goes with er doctor's surgeries"</i>	Interview; female, white, 35-54
Expectations	<i>"probably actually some of the things that, erm, that were, were covered I wasn't expecting so maybe it went beyond my expectations"</i>	Interview; male, white, 46-55
	<i>"I read the leaflet that came with the invitation letter and knew exactly what, er, what I would expect because it was very informative on the leaflet so I knew exactly."</i>	Interview; female, white, 66-75
Processes	<i>"There was more than one figure against the cholesterol result which was not explained. However I was given a telephone number so I could phone if I wanted to ask something later"</i>	Survey; female, white, 40-55
	<i>"I think it was interesting the fact that the test was carried out and inputted into the computer and the risk factors of, erm, things like, erm, heart attack and stuff were, erm, were given as a percentage risk and then the different parameters were changed to see what would make it, erm, less risk and what would make it more risk so that was, sort of, more educational as much as anything."</i>	Interview; female, white, 46-55
Understanding of results	<i>"Mostly I'm not at risk but could exercise more and watch my salt and alcohol intake"</i>	Survey; male, white, 46-55
	<i>"And the information was very clear, if I didn't understand I just pursued a bit further and asked questions, you know, and she gave me help I guess about, you know, about keeping fit. She gave me some literature about free bike rides."</i>	Interview; female, white, 35-45
Willingness to change behaviour	<i>"I haven't done anything with my routine because I suppose one of the reasons why I don't do, erm, regular exercise, is because of family commitments. Having said that, if, if I really, I suppose, wanted to take that next step. I would make the time .....I think it has to be from you as a person to make those, to make that first step and to do it"</i>	Interview; female, white, 46-55
	<i>"..I mean you know he did his best. You know I was happy to listen but, er, as I said I mean....all of the things I used to like doing, which was like you know, a lot of hill walking....I loved canoeing, I loved surfing, I loved snowboarding. I, I don't do any of those things now 'cause you know, I'm in London and just getting out of London's enough of a hassle."</i>	Interview; male, white, 46-55
Areas for improvement	<i>"1) the pharmacist was interrupted a few times with questions from colleagues. 2) Some of the results, e.g. blood pressure x/y: what each one represented, could have been explained a little more clearly; I've since learnt more by reading 'Your Results'."</i>	Survey; female, white, 35-45

	<i>"there were a few interruptions. I don't know , erm, if this lady was, what position she had within the pharmacy but people were asking her, sort of, knocking on the door and sort of saying, could you sign this, erm, so that wasn't a problem for me, erm, but I did notice that that happened."</i>	Interview; female, white, 46-55
Outcomes	<i>"I love salamis and all those kind of things and I have pretty much, I've really stopped apart from, kind of maybe a special occasion type thing. ....people have noticed that I'm looking slightly slimmer than usual so basically I'm just going to keep that going"</i>	Interview; male, white, 46-55
	<i>"actually, alcohol, yeah I have cut down on that a little bit"</i>	Interview; female, white 35-45
	<i>I've been really trying to make an effort to to do more and I've been going swimming when my son goes swimming and trying to do more running erm that sort of stuff really and trying to you know do the walking to school rather than opt to take the car.</i>	Interview; female, white, 35-45