

Outreach Providers Administering the NHS Health Check Target People At Higher CVD Risk

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Study Objective and Methods of Analysis

Study Objective

- Assess whether delivering the HC Programme with community outreach providers compared to general practices resulted in increased high cardiovascular (CVD) risk case finding

Methods of Analysis

- Compared 41,570 HC attendees served by community outreach providers from Jan 2008 to Oct 2013 to 20,409 HC attendees served by general practices from Apr 2009 to Mar 2013.
- Examined the association between prevalence of high 10 year CVD risk (based on QRISK®2) and the presence of risk factors.
- Modelled the likelihood of individuals being at high CVD risk based on their blood pressure, body mass index, cholesterol and smoking, using multivariable logistic regression.

Data Sources

- **Outreach Data:** (Jan 2008 to Oct 2013) Health Diagnostics[®]
 - Anonymised patient level data across England
 - 41,570 Health Check attendees (of 50,573 study population)
 - Opportunistic recruitment with Health Options[®] & POCT
 - Providers working in community settings:
 - Pharmacy Staff (61.2%)
 - Private companies (25.5%)
 - Health Improvement Foundation Trust (9.9%)
 - LA Occupational Health Departments (3.4%)
- **General Practice (GP) Data:** (Apr 2009 to Mar 2013)
Clinical Practice Research Datalink (CPRD)
 - Anonymised random sample of 300,000 patients in England
 - 20,409 Health Check attendees (of 95,571 study population)
 - Scheduled appointments and opportunistic checks in GP
 - Chang et al Preventive Medicine 2015;78:1-8.

Sociodemographic Profile of Health Check Attendees

Compared to general practice staff, outreach providers served

- More younger people (aged 40-59: 74.9% vs 64.7%)
- Fewer men (38% vs 45%)
- More South Asians (7.7% vs 3.2%)
- More people in the North (63.4% vs 21.96%) but fewer in the South and London areas (12.64% vs 41.63%)
- More socioeconomically deprived individuals (most deprived fifth of IMD: 45.2% vs 19.2%)

Prevalence (%) of Elevated BMI and Smoking

Body Mass Index		40-49		50-59		60-74	
		Outreach	GP	Outreach	GP	Outreach	GP
Obese	BMI>=30	24.00	29.97 ***	22.89%	27.08 ***	19.66	22.55 ***
Overweight	BMI>=25	64.45	67.40 ***	64.38%	66.88 ***	62.36	63.86 *

Smoking		40-49		50-59		60-74	
		Outreach	GP	Outreach	GP	Outreach	GP
Current smoker		24.36	20.76 ***	21.63	17.89 ***	16.68	13.93 ***
Non smoker		61.49	66.68 ***	62.61	69.91 ***	60.26	71.05 ***
Ex smoker		14.15	12.55 **	15.76	12.21 ***	23.06	15.02 ***

<i>Total Population</i>	17631	6006	13502	7201	10437	7202
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*Statistically significantly different at $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Proportional differences tested using Pearson's Chi-Square tests.

◇ Mean differences of TC/HDL ratio were tested using two sample t-tests.

Proportional differences for all other variables were tested using Pearson's Chi-Square tests.

Prevalence (%) of Elevated BP and Cholesterol

Blood Pressure		40-49		50-59		60-74	
	Threshold	Outreach	GP	Outreach	GP	Outreach	GP
Hypertension	BP ≥ 140/90	23.11	26.74 ***	29.65	33.91 ***	38.25	41.70 ***
Grade3htn	SBP ≥ 180 or DBP ≥ 110	1.05	1.03	1.68	1.11 **	2.44	1.46 ***
Grade2htn	SBP 160-179 or DBP 100-109	4.68	5.14	6.95	6.83	8.61	8.18
Grade1htn	SBP 140-159 or DBP 90-99	13.99	17.72 ***	18.23	22.16 ***	24.16	28.16 ***

Cholesterol		40-49		50-59		60-74	
	Threshold	Outreach	GP	Outreach	GP	Outreach	GP
TC ≥ 5 mmol/l		45.52	61.39 ***	59.72	73.09 ***	61.09	74.59 ***
Non HDL > 3.367 mmol/l		55.37	68.15 *	65.97	77.28 ***	66.20	77.65 ***
TC / HDL ratio > 5		23.11	24.86 **	22.66	24.22 *	19.27	22.23 ***
TC/HDL ratio mean (95%CI)		4.09 (4.07, 4.12)	4.19 (4.15, 4.22) ***	4.10 (4.07, 4.13)	4.19 (4.16, 4.22) ***	3.99 (3.97, 4.02)	4.12 (4.09, 4.15) ***

Prevalence (%) of Predicted 10 Year CVD Risk

		40-49			50-59			60-74		
		Threshold	Outreach	GP	Outreach	GP	Outreach	GP		
Very High CVD risk	QRISK 2\geq20%		0.11	0.02 *	1.47	0.58 ***	16.95	12.50 ***		
Statin Prescribing	QRISK 2 \geq 10%		2.04	1.60 *	13.95	13.40	63.36	66.94 ***		
High CVD risk	QRISK2 10-20%		1.93	1.58	12.47	12.82	46.41	54.44 ***		
	QRISK2 mean (95%CI)		2.84 (2.79, 2.90)	2.61 (2.58, 2.65) ***	5.88 (5.80, 5.95)	6.06 (5.98, 6.15) **	13.61 (13.46, 13.75)	13.17 (13.03, 13.31) ***		
	<i>Total Population</i>		17631	6006	13502	7201	10437	7202		

*Statistically significantly different at $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Proportional differences tested using Pearson's Chi-Square tests.

◇ Mean differences of QRISK2 were tested using two sample t-tests.

Proportional differences for all other variables were tested using Pearson's Chi-Square tests.

Likelihood of Being at Increased Risk of CVD

Unadjusted Odds Ratios

Provider	Age Group	QRISK®2 >=20%	QRISK®2 >=10%	QRISK®2 10-20%	Hypertens ion BP>=140/ 90 mmHg	Grade 3 HTN vs High normal BP	BMI>=30k g/m2	TC>=5m mol/l	Current smoker
		OR	OR	OR	OR	OR	OR	OR	OR
GP	40-49	1	1	1	1	1	1	1	1
Outreach		6.82 (0.92, 50.82)	1.28 (1.02, 1.61)*	1.22 (0.97, 1.54)	0.82 (0.77, 0.88)***	0.99 (0.74, 1.33)	0.74 (0.69, 0.79)***	0.53 (0.49, 0.56)***	1.23 (1.14, 1.32)***
GP	50-59	1	1	1	1	1	1	1	1
Outreach		2.55 (1.83, 3.56)***	1.05 (0.96, 1.14)	0.98 (0.90, 1.07)	0.82 (0.77, 0.87)***	1.45 (1.12, 1.88)**	0.80 (0.75, 0.85)***	0.55 (0.51, 0.58)***	1.27 (1.18, 1.36)***
GP	60-74	1	1	1	1	1	1	1	1
Outreach		1.43 (1.31, 1.56)***	0.85 (0.80, 0.91)***	0.77 (0.72, 0.82)***	0.87 (0.81, 0.92)***	1.66 (1.32, 2.10)***	0.84, (0.78, 0.90)***	0.53 (0.50, 0.57)***	1.24 (1.14, 1.35)***
GP	40-74	1	1	1	1	1	1	1	1
Outreach		1.04 (0.96, 1.12)	0.67 (0.64, 0.69)*	0.62 (0.59, 0.64)***	0.78 (0.75, 0.80)***	1.32 (1.14, 1.53)***	0.81 (0.78, 0.85)***	0.50 (0.48, 0.52)***	1.31 (1.25, 1.37)***

Likelihood of Being at Increased Risk of CVD

Adjusted Odds Ratios

	QRISK®2 >=20%	QRISK®2 >=10%	QRISK®2 10-20%	Hypertension BP>=140/90 mmHg	Grade 3 HTN vs High Normal BP	Grade 2 HTN vs High Normal BP	Grade 1 HTN vs High Normal BP	Obese BMI>=30 kg/m ²	Overweight BMI>=25 kg/m ²	TC>= 5 mmol/l	Non HDL > 3.367 mmol/l	TC / HDL > 5	Current smoker
	AOR	AOR	AOR	AOR	AOR	AOR	AOR	AOR	AOR	AOR	AOR	AOR	AOR
GP	1	1	1	1	1	1	1	1	1	1	1	1	1
Outreach	1.71 (1.55, 1.87)***	0.99 (0.93, 1.05)	0.93 (0.87, 0.98)*	0.85 (0.82, 0.89)***	1.47 (1.24, 1.74)***	1.00 (0.92, 1.08)	0.79 (0.75, 0.83)***	0.74 (0.71, 0.78)***	0.90 (0.87, 0.94)***	0.55 (0.52, 0.57)***	0.58 (0.56, 0.61)***	0.93 (0.89, 0.97)**	1.09 (1.04, 1.14)**

Note: Predicted CVD risk was adjusted by gender, age, family history of CHD and IMD. In addition to these covariates, risk factors were adjusted by ethnicity.

- Among the most deprived the outreach served population had increased odds of being
 - hypertensive (OR 1.12)
 - overweight (OR 1.18)
 - obese (OR 1.02)
 - smokers (OR 2.50)
 - TC/HDL ratio>5 (OR 1.20)

Key Points

- Compared to general practice, outreach providers
 - Served more younger people, socioeconomically deprived individuals and ethnic minorities
 - Found more people at very high CVD risk but fewer at high CVD risk
- Significant effects between increased levels of deprivation and hypertension, overweight, obesity, smoking and TC/HDL ratio > 5 in outreach population
- Outreach provision may be important for identifying very high risk people who would not normally engage with other aspects of the healthcare community